



## Health Human Resource Component

# Literature Review Report

### *Health Human Resource Planning / Modeling Activities for Primary Health Care Nurse Practitioners*

Prepared by: Tomblin Murphy Consulting Incorporated

**The Canadian Nurse Practitioner Initiative (CNPI)**  
Canadian Nurses Association, 50 Driveway, Ottawa ON CANADA K2P 1E2  
Tel: (613) 237-2133 or 1-800-361-8404; Fax: (613) 237-3520  
[www.cnpi.ca](http://www.cnpi.ca)

**Initiative canadienne sur les infirmières et les infirmiers praticiens (ICIIP)**  
Association des infirmières et infirmiers du Canada, 50, Driveway, Ottawa ON CANADA K2P 1E2  
Tél. : (613) 237-2133 ou 1-800-361-8404; Téléc. : (613) 237-3520  
[www.iciip.ca](http://www.iciip.ca)

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© Canadian Nurses Association  
50 Driveway  
Ottawa, ON K2P 1E2

Tel.: (613) 237-2133 or 1-800-361-8404

Fax: (613) 237-3520

Website: [www.cna-aicc.ca](http://www.cna-aicc.ca)

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## *Executive Summary*

The changing nature of health services in Canada is reflected in the evolving roles for nurses, other health care providers and the relationships between health professionals. An appreciation for the interdependency of the health care system has led to a growing consensus that no single provider or service can adequately address the complex health needs of the public. New approaches to health care delivery emphasize multidisciplinary, collaborative team approaches to care in primary health care settings (Offredy, 2002; Health Services Restructuring Commission, 1999; Alberta Health & Wellness, 2001). A key agreement at the 2003 First Ministers' Accord on Health Care Renewal was to "immediately accelerate primary health care initiatives to make significant annual progress so that citizens routinely receive needed care from multidisciplinary primary health care organizations or teams" (Health Canada in CNA, 2003). In this environment, the nurse practitioner (NP) is emerging as a service provider that is innovative, accessible and appears to be able to respond to the health care needs of specific populations (O'Keefe & Gardner, 2003).

The purpose of this work was to review and synthesize the current literature on health human resource planning and modeling activities specific to primary health care nurse practitioners (PHCNP) and analyze these findings for the purpose of informing key recommendations. Grey and empirical literature findings from international as well as Canadian jurisdictional and federal governments, professional associations, and unions were considered. This analysis was guided by the HHR Conceptual Framework developed by O'Brien-Pallas, Tomblin Murphy, Birch, and Baumann (2001).

### **Summary of Findings:**

There is an abundance of quality evidence beginning in 1970 that clearly demonstrates the positive impact of NPs on both system and health outcomes. Research consistently demonstrates NPs can provide care that is safe, effective and comparable to physicians in a wide range of situations and circumstances (CHSRF, 2002). It is apparent that both jurisdictional, regional, national, and international governments and policy-makers are interested in making PHCNPs a key part of the reform process as primary health care systems are transformed and reformed. Overall, the literature appraised for this report emphasized the both the commitment and notion that the PHCNP role may be part of the solution to resolve some of the most prevalent current health care delivery issues including access, wait times, efficiency and effectiveness of systems, and costs. Health human resource (HHR) planning for NPs in most Canadian jurisdictions and countries is limited by data availability, data quality, and timeliness of data collection. There are major gaps in all data related to PHCNPs and this is a concern as communities, governments, health services researchers, professional associations, and unions move forward with HHR planning exercises that are outcome driven and are based on the needs of populations. One of the key challenges for PHCNP planning is the immediate need for information and evidence to support NP HHR related policy. Grey literature consistently emphasize that data must be adequately resourced, both human and financially, so that the reliability, comparability, and comprehensiveness of HHR related data are enhanced. Governments, researchers, and health services executives often presume that the data which form the basis of resource planning are currently available and of good quality. Regrettably, there is very little data which pertains to NPs. Presently an examination of the gaps in data in all Canadian jurisdictions is being carried out by the CNA (Little, 2004) as part of the Canadian Primary NP Initiative funded through the

Primary Health Care Transition Fund.

# 1. INTRODUCTION

Tomblin Murphy Consulting Inc. was retained by the **Canadian Nurse Practitioner Initiative** (CPNI) to conduct a literature review related to health human resource planning for primary health care nurse practitioners (PHCNPs).

The purpose of this project is to review, synthesize and analyze current literature on health human resource planning related to primary health care nurse practitioner (PHCNP) practice to inform recommendations to effectively recruit and retain PHCNPs in Canada. This is one of two literature reviews that will guide the next phase of the work.

Changes in health care have led to evolving roles for nurses and other health care providers. An appreciation for the interdependency of the health care system has led to a growing consensus that no single provider or service can adequately address the complex health needs of the public. New approaches to health care delivery emphasize multidisciplinary, collaborative team approaches to care in primary health care settings (Offredy, 2002; Health Services Restructuring Commission, 1999; Alberta Health & Wellness, 2001). A key agreement at the 2003 First Ministers' Accord on Health Care Renewal was to accelerate primary health care initiatives so that citizens receive needed care from multidisciplinary primary health care organizations or teams (Health Canada in CNA, 2003). In this environment, the PHCNP is emerging as an innovative accessible choice of health care provider who has the required knowledge and skills to respond to the health care needs of specific populations (O'Keefe & Gardner, 2003).

According to the Canadian Nurses Association (CNA) NP practice is defined as “a nursing role with an increased emphasis on health assessment, health promotion and illness prevention” (CNA, 2004). The definition from the Nurse Practitioners Association of Ontario (2004) states that primary health care nurse practitioners (PHCNPs) are:

“registered nurses, who are specialists in primary health care, who provide accessible, comprehensive and effective care to clients of all ages. They are experienced nurses with additional nursing education which enables them to provide individuals, families, groups and communities with health services in health promotion, disease and injury prevention, cure, rehabilitation and support. The NP is an advanced practice nurse, functioning within the full scope of nursing practice and as such is not a second level physician nor a doctor's assistant.”

The term “advanced nursing practice” is an umbrella phrase that encompasses any advanced learning and skill development achieved beyond the registered nurse role. It is important to note that often the literature reviewed used the terms advanced practice nurses, expanded role nurses, clinical nurse specialists or acute care nurse practitioners interchangeably. For the purpose of clarification, it must be recognized that only literature and evidence pertaining specifically to the PHCNP role is described and analyzed in this work.

A PHCNP is an advanced practice nurse whose practice is focused on providing services to manage the health needs of individuals, families, groups and communities. The role is grounded in the nursing profession's values, knowledge, theories and practice and is a position that complements, rather than replaces, the role other health care providers. PHCNPs have the potential to contribute significantly to new models of health care delivery based on the principles

of primary health care. PHCNPs work both autonomously and collaboratively with other health care providers, most often physicians. In Canada, as well as internationally, NPs are currently practicing in a variety of settings including the community, acute care and long term care settings (CNA, 2002). However, while PHCNPs are currently working in most provinces and territories, Canadians are more likely to be treated by a PHCNP if they live in geographical areas that have difficulty in attracting physicians, such as rural and remote communities (CHSRF, 2002). Canadian provincial and territorial governments are beginning to place emphasis on the integration of this advanced nursing role in primary health care as they engage in health system reform. However, such integration of PHCNPs will require adequate planning to determine the supply of NPs required to meet future population health needs.

### ***Health Human Resource Planning and Management for Primary Health Care Nurse Practitioners:***

Health human resources are recognized to be of fundamental importance in Canada. Health human resource (HHR) planning and management is an important issue for policy makers, health care administrators, professional associations, unions and health services and policy researchers. In fact, HHR has become one of the top priorities and has been the subject of federal, provincial/territorial and sub-provincial/territorial reports, health commissions and reviews, and considerable media attention. There have been two major national reviews of the health care system to date: the Senate Committee on Social Affairs, Science and Technology (Kirby, 2002), and the Royal Commission on the Future of Health Care in Canada (Romanow, 2002). Several jurisdictional governments have conducted reviews of their health care systems and many of these reports consist of strategies for HHR planning and management. Furthermore, in the 2003 First Minister's Accord on Health Care Renewal the jurisdictional and federal government made a commitment to work together to enhance HHR planning and management. While each jurisdiction will continue to be responsible for service delivery and educational preparation of health care providers, all have come together to respond to common issues that benefit from a collaborative approach.

At their meeting in 2004, the first ministers outlined the focus of activities to enhance access to care and to reduce waiting lists and waiting times. They agreed to both continue and accelerate their work on health human resources action plans and initiatives to ensure an adequate supply and appropriate mix of health care professionals and to foster closer collaboration among health, post-secondary education and labour market sector (Health Accord, 2004). The federal and jurisdictional governments agreed to increase the supply of health professionals, based on their assessment of the gaps and, by December 31, 2005 to make public their action plans (including targets for training, recruiting and retaining health professionals) (Health Accord, 2004).

The 2003 and 2004 first ministers' accords reinforce that appropriate planning and management of health human resources is key to ensuring that Canadians have access to the health providers they need now and in the future. This includes plans for ensuring the supply of needed health providers, including PHCNPs (CNA, 2003). The provision of quality health care services is dependent on the availability of trained health care providers in adequate numbers (Tomblin Murphy & O'Brien Pallas, 2004). However, there has been little emphasis on HHR planning or modeling as it relates to NPs or PHCNPs. The HHR planning work that has been carried out to date has typically been based on health care system utilization patterns, changing demographics of the health care workforce and/or the general populations, and/or fiscal commitment (Tomblin Murphy & O'Brien-Pallas, 2002). There is a growing recognition that such approaches to HHRP

are limited. To ensure health care system efficiency and effectiveness, health human resource planning activities should be based on research evidence and be needs-based, responsive to a changing system, and outcome-directed (Tomblin Murphy & O'Brien-Pallas, 2002).

## **2. Methodology**

In preparing this review, peer-reviewed published literature was appraised from both national and international sources pertaining to the following content areas: role and utilization barriers and facilitators of NPs in primary health care; policy changes for nurses in advanced roles; health human resource planning/modeling; and health human resource planning specific to PHCNPs. This literature was accessed through major health databases including CINAHL, PubMed and Cochrane Library. In addition to searching in professional journals, websites of Canadian and international nurse practitioner bodies were accessed and appropriate and relevant publications such as unpublished reports, presentations and position statements were identified and reviewed. Furthermore, key documents relating to primary health care from the various provinces, territories and health authorities were reviewed and analyzed. Other grey literature was appraised including published and unpublished articles, reports, working papers, and discussion papers from a variety of government levels and health care jurisdictions, Canadian and international in scope.

## **3. Background**

There has been a growing concern in Canada that without a conscious effort to integrate planning for health human resources, the health care system will not be able to function at its optimum level and that patient care and the health of workers in the system will both suffer (CHSRF, 2003). It is well documented that health care providers working in the Canadian health care system are the greatest cost to the system. It is estimated that between 60 and 80 cents of every health care dollar in Canada is spent on human resources (CIHI, 2004). In fact, this cost to the system is of such concern that Romanow reinforced the need for a national effort to address challenges in the supply, distribution and mix of skills of health care providers (Commission on the Future of Health Care in Canada, 2002). However, despite the recognized importance of HHR planning, current work in this area is intermittent, and there is little evidence that current planning practices consider trends in society, determinants of health, needs of consumers, and the unique and shared knowledge and skills of all providers (Tomblin Murphy & O'Brien Pallas, 2002).

Changes in the epidemiological profiles of populations over time, combined with changes in the configuration of the health services and settings associated with the needs of populations have created new challenges for HHR planning (O'Brien-Pallas et al., 2001). There is no unambiguous "right" number and mix of health professionals. The need to plan for innovative health services to meet the needs of Canadians in both rural and urban locations demands new roles and different scopes of practice for health care providers including PHCNPs. This change in emphasis demands different partnerships and creative solutions to address the challenges in the health care system. These initiatives require committed partnerships between education and health sectors and between the federal and jurisdictional governments involving a variety of key stakeholders. Health provider requirements will be determined by broad societal decisions about the level of commitment of resources to health care, organization of the delivery and funding of health care services and programs, and the level and mix of health care services provided



(Tomblin Murphy & O'Brien-Pallas, 2002; O'Brien-Pallas, 2002).

The HHR planning process involves three major and inter-related steps that include planning, production and management (Hall in O'Brien-Pallas et al., 2001). The focus on one component at the expense of the others will contribute little to ensuring an effective and efficient health system. Health human resource planning models attempt to provide solid evidence for health human resource allocation decisions by approximating future planning requirements based on a variety of factors specific to the model being employed (O'Brien-Pallas, 2002; Tomblin Murphy & O'Brien-Pallas, 2002).

There is a growing consensus that integrated health human resource planning could lead to improved productivity, effectiveness and flexibility in the health care system (CHSRF, 2003). Integrated HHR planning involves determining the numbers, mix, and distribution of health providers that will be required to meet population health needs at some identified future point in time (O'Brien-Pallas et al., 2001). Furthermore, integrated planning replaces single discipline approaches to hiring and training with collaboration among different professions and different sectors in the health care system (CHSRF, 2003). This type of planning is concerned with aggregate level resource planning processes that occur over the longer term and it should involve estimating the future requirements for health human resources by provider type and identifying efficient ways of providing for those requirements (O'Brien-Pallas et al., 2001). Successful integration requires a supportive environment and demands fundamental changes in legislation, regulation, education, and work performance systems (CHSRF, 2003).

Government planners have used various approaches to forecast supply and demand related to health human resources. However, the broad choice of methods, a lack of comprehensive databases and inaccurate projections of population growth have not improved the precision of forecasting (O'Brien-Pallas et al., 1998). HHR planning to date in most countries has been poorly conceptualized, sporadic, varying in quality, profession-specific in nature, and lacks adequate vision or data upon which to base sound decisions (O'Brien-Pallas et al., 1999; Pong, 1997; O'Brien-Pallas et al, 1998; Hacon in O'Brien-Pallas et al., 2001). A comparative review of planning health human resources in Australia, France, Germany, Sweden and the United States reported that all countries ignore relationships between professions and that planning is carried out in silos using supply-based information systems with major gaps (Bloor & Maynard, 2003). In Canada, the majority of HHR planning continues to rely on outdated approaches. Though there have been several new initiatives in the various jurisdictions to develop effective planning methods, most jurisdictions rely on approaches based primarily on supply due to the fact that in most cases such data is readily available, or they use rates of past service utilization (Tomblin Murphy & O'Brien-Pallas, 2002). These approaches have led to repeated cycles of shortage and surplus of health providers (Tomblin Murphy & O'Brien-Pallas, 2002).

In terms of HHR planning specific to PHCNPs, there is interest from governments, educational institutions, nursing regulatory bodies, PHCNPs, and other health care providers to better understand the ways in which the PHCNP role can be more fully implemented and integrated into the health care delivery system. Despite the growing interest in the integration of PHCNPs into the health care system, there have only been a few jurisdictions in Canada that have developed plans for the education, employment and deployment of PHCNPs. The goal for provinces such as Ontario has been to develop PHCNP initiatives with the aim of improving access to primary health care. However, a report from the federal/provincial/territorial Advisory Committee on Health Delivery and Health Human Resources indicates that the full

implementation of extended roles by registered nurses remains unrealized despite consistent empirical support for the positive impact on the accessibility, availability and comprehensiveness of health care services, consumers acceptance of and satisfaction with this nursing role, cost containment, and positive health outcomes (Advisory Committee on Health Delivery and Human Resources, 2001). The role of the PHCNP is evolving in Canada and other countries and has the potential to increase public access to quality care while reducing costs to the health care system (CIHI, 2002).

NPs have existed in the U.S.A. since the 1960s, as opposed to Canada and the U.K. where, in general, the role only came into existence in the 1980s. Other countries such as New Zealand and Australia have only begun to introduce PHCNPs more recently (IBM, 2003). Historically, the implementation of NPs in Canada came about as a result of an undersupply of physicians (Advisory Committee on Health Delivery and Human Resources, 2001). The implementation of NPs was seen to be a substitute for physicians in rural and remote areas of the country. However, more recently, the role of the PHCNP has been expanded and is more valued in the primary care setting (IBM, 2003). An increased demand for primary care services, as well as several factors such as reduced funding allocations throughout the health care system, decreased admissions to medical schools, and the shortage of nursing, medical and other health care providers has influenced jurisdictional governments to re-evaluate how to best utilize health professionals (Advisory Committee on Health Delivery and Human Resources, 2001). The notion of the PHCNP role as substitution for physicians' services has been contentious in discussions related to HHRP and discussions of how the role potentially impacts on the practice of other professionals, especially that of generalist physicians has been the topic of ongoing debate. However, numerous studies confirm that both systems and patients benefit from the collaboration between PHCNPs and physicians and the combination of their complementary skill sets (Flanagan in CNA 2003).

A challenge to comprehensive and effective HHR planning for PHCNPs in Canada may also be related to the fact that there is a lack of consistency in the role expectations, education, medico-legal issues and scope of practice of PHCNPs across provinces. Problems that arise from this lack of consistency are confusion of the public and the professionals regarding the advanced nursing role. There are no national standards to guide the development of core competencies across health care settings (Advisory Committee on Health Delivery and Human Resources, 2001). Experiences of PHCNPs in Canada vary from one jurisdiction to the next. In some provinces, the role has been specifically legislated while in others, PHCNPs function within existing nursing legislation. Even the titling of PHCNPs has proven to be complex and varied, as across Canada different official titles exist for nurses who work within a broader scope of practice. Further, the isolated way in which HHR planning has traditionally been carried out does not lend itself to adequate or meaningful health human resource planning for PHCNPs and other health care providers.

There is a need to carry out integrated planning across health provider groups with an emphasis on the impact of geography and skill mix. Although future demand for physicians is often considered, most planning is carried out in silos using supply based information systems with major gaps. In a report prepared by the Canadian Medical Association (CMA, 2002), physician workforce issues are identified as being of paramount importance to the Canadian Medical Association. The CMA has been involved in a number of physician workforce related initiatives resulting in a series of formal policies addressing physician resource planning; rural and remote

practice issues; physician health and well-being; and physician compensation. Similar to nurses and physicians, allied health care providers report having difficulty recruiting students, aging workforces, and experiencing high levels of fatigue and burnout. In addition, they are predicting nation-wide shortages in the next five to 15 years (The Standing Senate Committee on Social Affairs, Science & Technology, 2002). According to the World Health Organization (WHO), integrated, multidisciplinary, collaborative and cooperative models are required for effective workforce planning (WHO, 2001). Governments are currently establishing action plans to deal with workforce issues. Common features of these plans include both a more effective utilization and distribution of health care providers and an increased cooperation between providers. Such plans have resulted, in part, because of the mounting concerns regarding wait times for health care services, and growing evidence that many people do not have adequate access to primary health care providers. In fact, it is reported that 16.4% Canadians do not have access to primary health care services (Statistics Canada, Health Services Access Survey, 2001).

HHR forecasting is limited by the availability of reliable and valid databases for examining supply and use of PHCNPs and other nursing personnel across sectors (O'Brien-Pallas et al., 2000). Although the data required for estimating and describing the supply of nurses are often more accurate than that for physicians (Turner et al. in O'Brien-Pallas et al., 2000), labour force participation patterns tend to be less predictable, demonstrating considerable variation both within and across age cohorts. Therefore, long-term estimates based on nurse supply in general are more susceptible to inaccuracy (O'Brien-Pallas et al, 2000). As with the physician population, failure to recognize the considerable substitution potential across all allied health professions can further reduce the accuracy of the supply side forecasting (Pong, 1997; Turner et al., in O'Brien-Pallas et al., 2000). As O'Brien-Pallas et al. (2000) indicate, the best example of failure to recognize substitution potential is the slow adoption of the PHCNP role in Canada even though research to date has clearly demonstrated that the health and system outcomes associated with care provided by PHCNPs are comparable to those associated with care provided by general practitioners. Furthermore, studies in the United States have demonstrated that in primary health care settings, collaborative practice between PHCNPs and physicians has improved the organization and efficiency of care in community health centres and in the practice settings of both general and specialty physician practices (IBM, 2003).

Increasing the scope of practice for nurses to include roles traditionally held by physicians has implications for workforce planning. Where there is a shortage of registered nurses, the utilization of advanced practice roles in nursing may only be shifting the problem further down the line. To take account of how new roles will affect the broader context of care delivery, workforce planning needs to be integrated across all disciplines. The opportunity to engage in nursing practice at an advanced level offers new opportunities and career paths for nurses in general, and the new roles for nurses may have a positive long-term impact on recruitment and retention.

### ***The Primary Health Care Approach***

In 1978, WHO adopted a primary health care (PHC) approach as the basis for the effective delivery of health services. This PHC approach incorporates both a philosophy of health care and an approach to providing health services. This type of care is based on a holistic definition of health that recognizes the influence of social, economic, and environmental factors on the well-being of people (Howard Research Inc., Monograph, in Alberta Health & Wellness, 2001).

PHC embraces five types of care including: health promotion, disease prevention; curative care; rehabilitative care; and supportive/palliative care (Saskatchewan Department of Health, 2004). The overall focus of PHC is on preventing illness and promoting health. It is well documented that the PHC is effective in responding to the needs of various client groups from individuals through families and communities to populations. The principles of primary health care include: accessibility, public participation, health promotion, appropriate technology and intersectoral cooperation (CNA, 2000). Accessibility means that the various types of health care are universally available to all clients regardless of geographic location, i.e., clients will receive appropriate care from the appropriate health care provider, within an appropriate time frame. The principle of accessibility can best be operationalized by having communities define and manage necessary health care services. The distribution of health professionals in rural, remote and urban communities is key to the principle of accessibility. PHCNPs have an important role in a system based on the principles of primary health care and through the full integration of their role it is suggested that PHCNPs can facilitate the preservation of the health care system which is founded on the *Canada Health Act*, and is the envy of many countries.

#### **4. Components for Consideration in Health Human Resource Planning and Management**

As identified by O'Brien-Pallas et al., (2002) there are a number of key components, data elements and influencing factors relevant to HHR planning. In the next section of this paper, these factors will be explored in-depth as they relate to health human resource planning for PHCNPs.

##### **4.1 Approaches to Health Human Resource Planning**

Birch et al. (1994) identify three conceptual approaches for HHRP: utilization-based, needs-based and effective demand-based approaches. While the unit of analysis remains unchanged from one approach to another, the underlying “driver” of this measure differs among approaches, reflecting the different ways societies think about the delivery of health care, the provision of services, the population’s needs and the commitment of society’s scarce resources (O'Brien-Pallas et al., 2004). The variables for consideration in these planning approaches have been primarily supply related. In utilization based models the quantity, mix and population distribution of current health care resources are adopted as a baseline for estimates of future requirements. As shifts are predicted in the basic demographic characteristics of the population, these are compared to current baseline factors in order to obtain predictions about future requirements. However, as identified by Lavis and Birch (1997), this approach is limited by the fact that utilization rates are dramatically affected by factors other than the population characteristics typically included in utilization-based models. Needs-based planning models attempt to approximate future health provider requirements based on an empirical assessment of the levels of health needs in a population. Unlike utilization-based approaches, however, needs-based planning begins from the premise that the current distribution of health care providers and services are not necessarily optimal for addressing population health needs, and that health human resources must be redistributed if health needs are to be met (Markham & Birch, 1997; Tomblin Murphy, 2002). Effective demand-based approaches to HHR planning attempt to incorporate economic considerations into the epidemiological principles of the needs-based approach. The beginning point is the estimation of the future size of the economy from which health providers will be funded, which allows for an estimation of the proportion of total

resources that might be afforded to health care, and that the share of this health care allocation that is estimated will be dedicated to health provider services (Lavis & Birch, in Tomblin Murphy, 2002). Birch et al., (2003) identified that HHR planning has traditionally been an exercise in demography based on implicit assumptions that population structure alone determines the service needs of the population and that the age of providers determines the quantity of care provided. The main limitation of such approaches is the failure to reflect the complex nature of the processes underlying the needs for services and the delivery of services as well as the effects of HHR planning on population, provider and system outcomes (Birch et al., 2003).

Modeling efforts in Canada have primarily focused on forecasting the future supply of health care providers required to deliver care. Over the past five years, numerous reports at the provincial/territorial level and sub-provincial/territorial levels have reinforced the importance of HHR planning and management. However, it is clear that there is variation in HHR modeling between, across, and even within jurisdictions and the federal government in Canada. Most jurisdictions seem to be using supply, demand, and utilization models with a commitment to better understanding ways to incorporate population health needs and other indicators. However, it is important to stress that the plans are not easily accessed on government websites or from journals. For instance, the B.C. government implemented the COPS Demand Model, which is described as being macroeconomic in scope and uses econometric forecasts and factors related to demand and attrition. Similarly, Alberta has forecasted physician and inpatient demand adjusting for the impact of demographics and morbidity in their Physician Inpatient Demand Model. Health Economists at McMaster University have developed System for Health Area Resource Planning (SHARP) which is a demand-based model that considers factors such as changing demographics, attrition, migration patterns, practice patterns, production and changes in specialties (Denton & Spencer, 1993). In Quebec, payroll data is used to estimate demand for all non-physician health service providers considering factors such as supply, demographics, technology and service delivery.

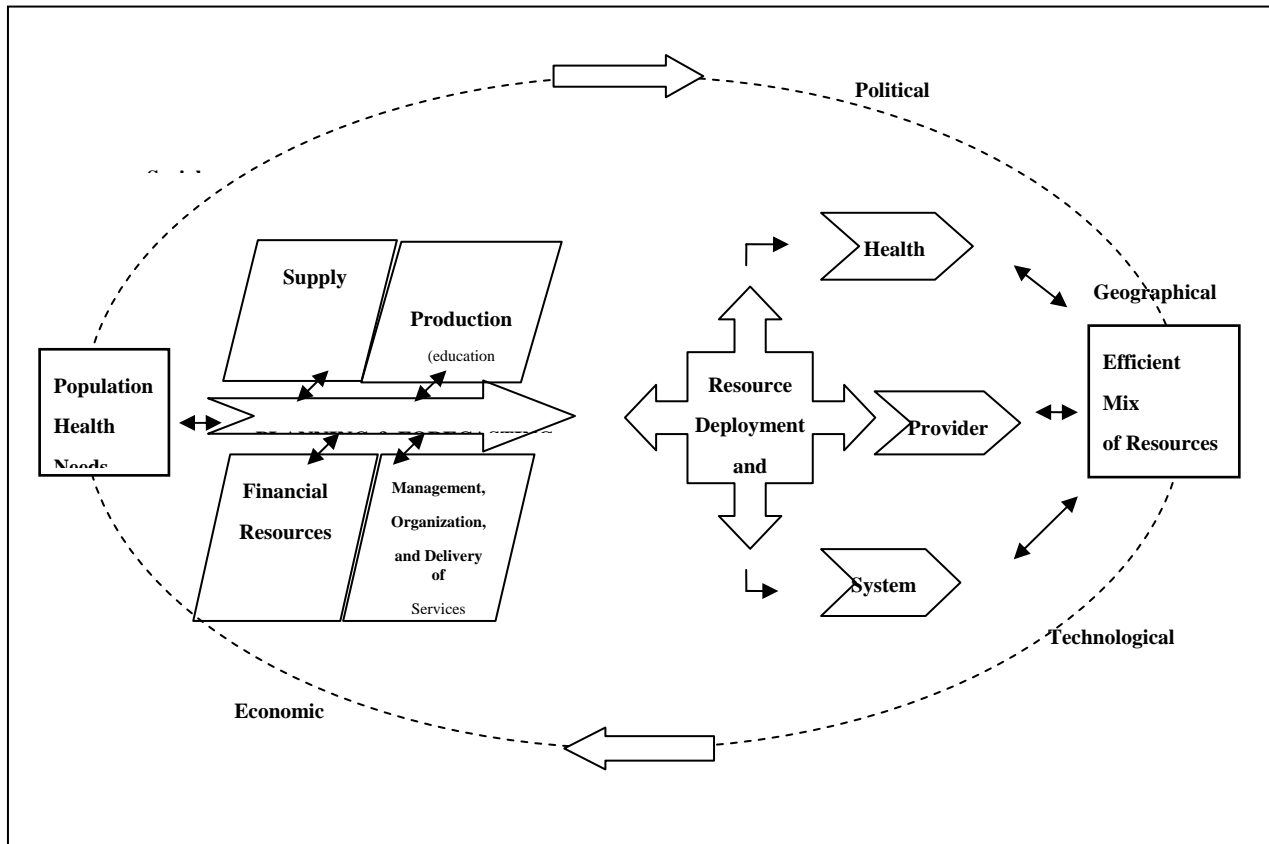
Historically, HHR planning in Canada has been carried out by individual jurisdictions, each one working independently to produce/recruit the right number and mix of health care providers to achieve self-sufficiency in health human resources. Through an innovative partnership, the Atlantic Provinces (Nova Scotia, Newfoundland and Labrador, Prince Edward Island and New Brunswick) are working together to develop a common HHR plan for the region. Through the Atlantic Advisory Committee on Health Human Resources (AACHHR), stakeholders responsible for both health and education are assessing the adequacy of health education/training programs in the region in relation to the demand. Each Atlantic province has completed a labour market analysis and all are now involved in a study to forecast the Atlantic region's future need for health care providers in 30 major occupations and the resulting implications for education/training programs. This simulation work goes beyond the traditional HHR models based on supply and population to provider ratios by integrating key factors such as indicators of the population's health status as well as in-migration, productivity, and attrition. Regional collaboration has enhanced the region's ability to predict future health education and training needs and has offered opportunities for jurisdictions to share information, and strengthened the region's capacity to collectively address health human resource issues (ACHDR, 2004). Both Saskatchewan and Manitoba have considered the needs of their population, the geographic distribution of people and providers as well as other factors related to supply and demand in their HHR planning. Numerous reports pertaining to physician planning have been available for the past decade (Black et al., 1995; Saskatchewan Department of Health, 2004).

***Federal Initiatives:*** In the 2003 federal budget, \$90 million was allocated to enhance national HHR management and planning with a focus on: strengthening the evidence base for national planning; promotion of interdisciplinary provider education; and enhancement of recruitment and retention, indicating strong federal commitment to HHR (CIHI, 2004). The Treasury Board has approved \$20 million per year for HHR initiatives. HHR studies to examine the health workforce in Canada from a variety of perspectives including profession specific, sector specific and disease specific have been undertaken. An example of this is the Nursing Labour Market Sector Study (*Building the Future*, Nursing Labour Market Study, 2004) in which a simulation model was developed that facilitated a better understanding of the impact of various factors affecting future supply in both the short and long-term for registered nurses, licensed practical nurses, and registered psychiatric nurses. This study not only provided valuable insights on the reasons for the current crisis but also allowed for the modeling of alternative policy options to deal with the shortages. The simulation model that was developed explored the short and long term impact of differences in age distributions and of recruitment and retention rates on future supply.

***Health Human Resource Planning Conceptual Framework (O'Brien-Pallas, Tomblin Murphy, Birch, & Baumann, 2001)***

As identified earlier, many approaches have been developed and tested to estimate the requirements for health human resources. Very few plans have been driven by a conceptual framework for HHR. To date, HHR planning has been supply-driven with very little attention being paid to demand factors and needs of the population (O'Brien-Pallas et al, 2002; Tomblin Murphy et al., 2004). Demand factors impact the future demand for health resources and include population demographics, innovations or technology, availability of treatment and options, patient attributes, wait lists, access to services, service utilization, incidence of disease which drives utilization, and health providers' work patterns (Tomblin Murphy et al., 2004). A comprehensive HHR framework/model needs to identify the precise nature of each of these characteristics and the relationships between them. The following conceptual model has been developed by O'Brien-Pallas, Tomblin Murphy, Birch & Baumann (2001) to guide HHR planning and management and may be relevant to HHR planning and management of PHCNPs:

**Figure 1: Health Human Resources Conceptual Framework:** O'Brien-Pallas, Tomblin Murphy, Birch, Baumann, 2001 (adapted from O'Brien-Pallas & Baumann, 1997)



Recently, it was well established that simulation models are a powerful technique for forecasting. Hall, in O'Brien Pallas et al., (2001) identified that simulation models allow planners to explore the consequences of alternative policies, facilitate input and output sensitivity analysis, and make it easier to involve stakeholders throughout the process. Personnel to population ratios, population based rates and utilization based rates have been used as the basis for computerized simulations (Deane, Denton et al., Trivedi et al., in O'Brien-Pallas et al., 2001). These are not considered to be typical simulation models. Instead, they are static models that lack the capacity to examine the dynamic relationships among inputs/outcomes (O'Brien-Pallas et al., 2001).

The HHR Conceptual Framework for HHR planning (O'Brien-Pallas et al., 2001) is designed to include the essential elements of HHR planning in a way that captures the dynamic relationship among several factors that have previously been conceptualized in isolation of one another. The framework is designed to provide researchers and HHR planners with a guide to decision-making that takes into account current circumstances as well as those factors that need to be accounted for in making predictions about future requirements. These factors include social, political, geographic, economic, and technological factors. At the core of the framework is the recognition that health human resources must be matched as closely as possible to the health care needs of the population (O'Brien-Pallas, 2002). There are several key elements and influencing factors relevant to this work and they are as follows.

**Population health needs** reflects the multiple characteristics of individuals in the population that create demand for curative and preventive health services. Population characteristics related to

health levels and risks reflect the varied characteristics of individuals in the population that create the demand for curative and preventative health services (O'Brien-Pallas, 2002). Health need is directly and/or indirectly influenced by determinants of health including social, cultural, political, contextual, geographical, environmental and financial factors (O'Brien-Pallas, 2002). Addressing the health needs of the population provides the motive, context and justification for HHR planning practices.

**Provider supply** is an element that reflects the actual number, type and geographic distribution of regulated and unregulated providers delivering health services at a given point in time. Supply is fluid in nature and is influenced by several factors such as provider-to-population ratios, participation rates, employment sector, etc. The role undertaken by any regulated provider is determined by licensing/regulation standards of practice and the role of unregulated workers is excluded from licensure/regulation and is generally employer determined (O'Brien-Pallas, 2002). To meet the requirements for supply of health care providers, the role of physician assistants (PAs) in addition to PHCNPs is the focus of discussion in some jurisdictions as well as in the Department of National Defence.

**Production factors** involve the education and training of future health providers. The number of formal positions an educational institution will offer is influenced by financial resources and the designated number of funded seats (O'Brien-Pallas, 2002). The link between population health needs and future capacity to meet those needs ought to be considered in setting production targets for seats in any health discipline (O'Brien-Pallas, 2002). The shortcoming in HHR planning to date has been the emphasis on increasing the capacity for health care providers through the increase in educational seats. Recent studies support that the focus on increasing seats without acknowledging issues of recruitment and retention has contributed to cycles of surpluses and shortages of health care providers (Kephart et al., 2004).

**Financial resource** factors provide an economic context for HHR planning decisions and involve estimation of the future size of the economy from which the particular health human resource and competing services will be funded (O'Brien-Pallas, 2002). Financial indicators relevant to HHR planning include: expenditure on each provider group by source; size of the jurisdictional economy; Ministry of Health expenditure on health care by program; Ministry of Health expenditure on providers by type of provider for each program; salaries/average earnings per provider by type of provider and program/sector; average household disposable income; prevalence of private insurance by coverage; and expenditure of workers compensation boards or equivalent (Birch, 2004; Tomblin Murphy et al., 2004). These indicators need to be collected for the past decade in order to establish trends, together with any future plans, and as Tomblin Murphy et al. (2004) identified, it is critical to determine whether governments are willing or able to allocate or reallocate sufficient funds to support health human resource plans. Funding models for physicians, PHCNPs and other health care providers need to be realigned to acknowledge changing and expanded scopes of practice.

**Management, organization and delivery of health services** influence how care is delivered across the continuum. Management and organizational characteristics influence the amount and quality of care provided, provider health and satisfaction, and costs associated with delivery of services (O'Brien-Pallas, 2002). Influencing the way work gets done, and impacts on outcomes are organizational characteristics such as structural arrangements, the degree of formalization and centralization, environmental complexity, and culture (O'Brien-Pallas in Tomblin Murphy et al., 2004).



**Resource deployment and utilization** reflects the amount and nature of the resources deployed to provide health services to the population at large. Utilization reflects the nature and type of resources utilized by the population to meet health needs (O'Brien-Pallas, 2002). The efficiency and effectiveness of service delivery depends to a great extent on the efficient and effective deployment and use of health providers. As O'Brien-Pallas (2002) determined, decisions made about the deployment and use of personnel across all sectors of the system influence access to services and utilization by the population, and outcomes. The challenges associated with changing distribution and utilization of PHCNPs, general/family practitioners and other health care providers are vast. Strategies to alleviate these barriers need to be carefully designed and evaluated to determine the overall impact on system and health outcomes.

**Population health outcomes** focus on individual health and the health of populations or communities. These may include population health surveys, vital statistics mortality data, cancer registry data, hospital discharge diagnoses and the diagnosis submitted on claims form physicians' visits (O'Brien-Pallas, 2002). These indicators capture various dimensions of community health.

**Provider outcomes** include the health status of providers, retention rates, turnover rates, sick time, work satisfaction, levels of burnout and other affective responses to the work and work environment (O'Brien-Pallas, 2002).

**System outcomes** include the cost associated with the resources dedicated to health services. Some examples include rates of hospitalization, home visits, case intensity, discharge efficiency, etc. (O'Brien-Pallas, 2002). Governments, professional associations, unions and other key stakeholders are considering the important indicators and benchmarks in evaluating the impact of PHCNPs, general/family practitioners and other health care providers on system outcomes. For example, the consideration of health care provider to population ratios is apparent. However, linking changing acuity of patients and other system inputs, as well as the unique needs of people living in rural and under-served communities, is not always part of the discussions as they relate to ratios.

**Efficient and effective mix of human resources** is determined by the interaction of the several elements of the HHR conceptual framework. This provides an evidence base for exploring the implication of policies for planning future health human resources and this includes policies associated with education, certification, licensure and scope of practice (O'Brien-Pallas, 2002).

**Influencing Factors:** HHR planning must consider the impact of several related factors such as social, political, geographical, technological and economic and how these generally influence resource allocations. Social factors may include consideration of the determinants of health and value choices that underpin macro-level resource allocations (Kenny, in Tomblin Murphy et al., 2004). Political factors and the issue of political will are important as HHR planning decisions are also influenced by the presence or absence of political will to incur the costs of promoting health care system reform among competing priorities (O'Brien-Pallas, 2002). Geographic factors (urban and rural) influence access to health services including human resources (Tomblin Murphy et al., 2004). The introduction of new technologies combined with the expectation that such advances create, impact the production, supply and efficiency of providers (O'Brien-Pallas, 2002). Economic factors both contribute to the health status of the population and to the degree to which health care needs can reasonably be met (O'Brien-Pallas, 2002).

In addition to these contextual factors, HHR planners need to consider the possibility of

unanticipated “shocks” to the system, which happen from time to time and may influence the health human resource process (O’Brien-Pallas et al., 2002). An example of such a surge would be the severe acute respiratory syndrome (SARS) outbreak that occurred in the Ontario health system in 2003.

As discussed, in the past planners have used various approaches to forecast health human resource supply and demand. However, the use of these traditional methodologies has not improved the accuracy of forecasting (Pong, 1997). The main limitation of such approaches is the failure to reflect the complex nature of the process underlying the needs for service and the delivery of services, as well as the effects of health human resource planning on population, provider and system outcomes (Birch, et al., 2002 in Tomblin Murphy & O’Brien Pallas, 2002).

#### **4.2 Utilization of NPs Nationally and Internationally**

The contribution of PHCNP services to population and public health is being recognized in a growing number of countries. PHCNPs provide quality health services in a range of settings and the integration of their role into health care systems can lead to improvements in access for people and communities to health services (CNA, 2002).

In an OECD survey conducted recently, it was indicated that eight OECD countries experienced some current level of use of nurses in advanced practice roles, and a further three countries reported pilot studies either being considered or underway (OECD, 2004). In relation to the capacity of NPs to prescribe, eight countries reported that nurses had been given limited authority to prescribe. Australia, Canada, England, Korea, New Zealand, Spain, Sweden and the United State all reported that nurses in advanced roles had some form of limited prescribing authority (OECD, 2004). Six countries reported that nurses in some advanced or specific roles had been granted capacity to bill patients for their services and seven countries reported that nurses in advanced roles could refer patients to specialists in a gatekeeper system (OECD, 2004).

In the United States the projected number of NPs is more than 100,000 by 2005 (Alpert et al., 2002) while physicians are expected to increase only about 10% from current numbers, to about 700,000, according to a study published in *Journal of the American Medical Association* (Cooper et. al, in CNA, 2002). The numbers of NPs and physician assistants (PAs) in general are increasing in the United States. In fact, in March 2002 there were 102,829 nurses with formal NP education and of these 58,512 were employed as NPs. Similarly, by 2001, 52,716 PAs graduated from accredited programs and 45,120 were employed as PAs (Hooker & Berlin, 2002). The underutilization of both NPs and PAs is apparent in the United States as well as in Canada. It is evident that the planning for NPs and PAs is linked to financial factors and physician shortages in the United States, whereas in Canada, the increased number of PHCNPs is linked to physician shortages, increased commitment to primary health care services and financial and access factors.

In the United States, NPs under state regulations provide many services including diagnosing and treating acute and chronic health care problems; performing prenatal, well-child, well-woman and adult care check-ups; diagnosing and managing minor trauma including suturing and splinting; prescribing medications; and teaching health promotion and disease prevention to patients. Currently NPs have a presence in all 50 states (Alpert et al., 2002). While NPs in the United States are legislated by the *Nurse Practice Act* in each state, they may also be credentialed nationally in their area of practice. In over half the states, NPs may now practise

without any requirement for physician supervision or collaboration and in all states, NPs have some level of independent authority to prescribe drugs (Alpert et al., 2002). In addition, NPs are now eligible for direct Medicaid reimbursement in every state (Mundiger, et al. 2000) and in many states, NPs practice in collaborative relationships with physicians. The educational requirements for NPs in the United States include four years of college with a Bachelor of Science in Nursing, with an additional two years of graduate school to obtain a master's degree as a NP (Greene in CNA, 2002).

In Australia, the Government of New South Wales (NSW) has enacted the *Nurses Amendment (Nurse Practitioners) Act 1998* that provides for recognition and accreditation of NPs in NSW. The legislation provides for NPs to be given limited prescribing privileges (CNA, 2002). Current legislative restrictions relating to the initiation of medications and diagnostic services are being reduced providing that adequate education and professional standards are maintained. The NP role is currently being considered for implementation in South Australia, the Northern Territory, Queensland and Western Australia. Further, a coalition of national nursing organizations endorsed a National Consensus Statement on the Recognition of NPs in Australia (ANF in CNA, 2002). The statement proposes a definition of the role of NPs, scope of practice, educational preparation, career structure, remuneration, protection of the title, authorization to practice and legislative support (ANF in CNA, 2002).

England, Scotland, Wales and Northern Ireland have each produced a white paper addressing primary care and the role for nurses in a PHC system. All papers acknowledge that NPs will be an important resource for full implementation of primary care (White in CNA, 2002).

In New Zealand, a 1998 ministerial taskforce supported the development of a role for NPs. The taskforce recommended that the Minister of Health direct the Nursing Council to develop and validate specialist competencies linking to nationally consistent titles (Ministerial Taskforce on Nursing, in CNA, 2002). Current legislation governing the regulation of nurses is the *Nurses Act* of 1977. The Nursing Council of New Zealand has developed a framework, including guiding principles for scope of practice for NPs, education requirements, accountability, transition needs and spheres of responsibility (Nursing Council of New Zealand, in CNA, 2002).

In the U.K., in some states in the Pacific, Taiwan, West Africa, and in Canada, the advanced practice nurse is not a registerable role, although the titles of nurse specialist/nurse practitioner are used (Buchan & Edwards, 2000; World Health Organization, Chen, Madubuka, and Busing, in OECD, 2004). This situation makes it difficult to compare the roles, level of education or competency of nurses with this title either between these countries or with other countries internationally. Australia, Canada, England and South Korea all reported on the introduction or extension of the use of nurses in advanced roles to improve efficiency, as a response to physician shortages and/or to improve access to services in rural and remote areas. Furthermore, six countries reported specifically on the existence and deployment of NPs (OECD, 2004). Arguably, the United States is at a more advanced stage of the implementation of nurses in advanced roles than Canada or England. In the United States advanced practice generally refers to competence in five separate areas—clinical, research, teaching, consultancy and leadership (Pearson & Peels, 2002).

In the United States, the pursuit of value for money was seen as a leading driver of the spread of advanced practice nurses and the role was strongly advocated for by the nursing profession. In the U.K., the development of new health delivery services was reported as a leading driver for

the emerging role and the growth of advanced practice nurses was led by government policy; and with more positive support from the medical profession than was reported in the United States (OECD, 2004). In the United States, federal and state government policy and legislation from the late 1960s onwards have been seen as helpful to the development of advanced practice roles for nurses. In contrast, such roles have not yet been defined under legislation in the U.K. (OECD, 2004).

The scope of practice for PHCNPs varies across Canada, and tends to be driven by the specific needs of the practice setting and differing legislation which may contribute to the significant variation in the PHCNP scope of practice (IBM, 2003). With respect to the primary care setting, legislation in Ontario sets out controlled acts, which are to be performed by registered nurses with an extended class designation. In primary care settings in Ontario, many PHCNPs conduct primary health care services and patient education (IBM, 2003). In Ontario, most PHCNPs choose to practice in primary care (Beitz, 2000) in any of a number of primary care practice settings including general and family practices, pediatric services, and community health centres.

Although there is little data available regarding the overall actual number of PHCNPs practising in Canada (van Soeren & Micevski, 2001), we do know that in the United States the number of NP students rose from less than 4,000 in the early 1990s to over 21,000 in 1999 (Philips, 2002). With the exception of perhaps Ontario, understanding where and how PHCNPs work in Canada is a challenge due to a lack of data, inconsistent definitions, and the quality of self reported data. It is known that since 1998, 402 NP positions in Ontario have been funded by the Ministry in community health centres, the Under Served Area Program, long-term care facilities, Aboriginal Health Access Centres, Primary Care Networks, and Public Health Units (IBM, 2003). The ministry intends to create an additional 348 positions during the period of 2001–2005. Primary care is the area in which most PHCNPs choose to practice. In a descriptive study by Sidani et al., (2000), it was reported that almost all NPs surveyed offered wellness care, care of minor acute illness, and monitoring of chronic illness and that over 60% offered care of major acute illness and palliative care. Approximately, 25% offered other services for specific populations such as the homeless, aboriginal people, pregnant women, or those with psychosocial problems.

### **4.3 Supply**

#### *4.3.1 Issues related to supply and distribution of NPs*

Supply refers to the actual number and geographic distribution of PHCNPs delivering health services at any given point in time. As previously noted, current data regarding the number and type of PHCNPs is limited in Canada (van Soeren & Micevski, 2001). However, in the report entitled *Workforce Trends of Registered Nurses in Canada* (CIHI 2003) it is explained that the collection of data on NPs in Canada was initiated in response to requests from the research community. Presently, CIHI defines the role of NP as a job description as opposed to a regulated role which makes the definition incomplete. To illustrate this point, in Alberta, CIHI obtained year 2002 Extended Practice information from the Alberta Association of Registered Nurses (AARN). According to AARN data, there were 58 RNs on the Extended Practice Roster in 2002; according to CIHI data, there were 42 RNs employed in “nurse practitioner” positions in Alberta in 2002.

Currently, new or amended provincial/territorial legislation allows for an expanded role for RNs

as NPs in several jurisdictions in Canada, and those who do not have legislation are working on implementing similar legislation. It is also widely recognized that we are in the midst of a growing nursing shortage in North America and that by the year 2020, the demand for RNs could exceed the available supply by 20% (Health Resources and Services Administration, in Cramer et al., 2004). As PHCNPs are RNs, this shortage will inevitably affect the supply of these advanced practice nurses in the years to come. It has been identified that increasing the scope of practice of nurses to include roles traditionally held by doctors also has implications for work force planning. Where there is a shortage of RNs, the utilization of nurses in advanced practice roles may only be shifting the problem further down the line with nurses offloading tasks to unqualified staff (OECD, 2004).

In 2003, the registered nursing workforce was made up of 241,342 RNs working in nursing in Canada. Between 2002 and 2003, the number of registrations increased in 10 of 13 jurisdictions of Canada. Furthermore, in 2003, 82.5% of the RN workforce (excluding Quebec) lived in urban areas of Canada and a total of 5,366 RNs lived and/or worked outside of Canada in 2003. Of these, 81.5% (4,371) were employed in the United States (CIHI, 2003). Concerns for a global shortage of RNs are aggravated by the increasing size and proportion of elderly populations, health care system restructuring, changing work environments and competition from other career opportunities for potential nursing school applicants (O'Brien-Pallas et al., 2003).

There are many dimensions that impact on the supply and distribution of health providers including: participation rates; provider to population ratios; demographic and educational characteristics of individual providers; full and part time work hours; employment sector; underemployment; unemployment; and inactivity (O'Brien-Pallas, 2002). In the case of PHCNPs, the supply and distribution of general/family practitioners will have a direct impact on demand for PHCNP services. However, it is important to recognize that when the PHCNP role was first being introduced two decades ago, physician shortages and gaps in service in and of themselves would have been insufficient to develop and create an advanced practice nursing role. In all situations in which PHCNPs and other advanced practice nursing roles have evolved, there has been a welcoming political climate at the time. This acceptance of the role at various levels of influence can foster and facilitate the development and implementation of the roles (MacDonald et al., 2004). In 2004, CIHI counted more than 29,283 generalist physicians in Canada. The data collected by the OECD (2004) shows that there are both significant variations between OECD countries in the ratio of physicians to nurses, and that these ratios have been changing in countries over time. The interpretation of any ratios must be carefully considered, as they do not always adjust for the acuity of patients, supply of beds, access to services, population health needs, etc.

According to IBM (2003), in a study on the barriers and facilitators related to integrating the PHCNP role in Ontario there were varying degrees of satisfaction with the supply and the deployment of PHCNPs. According to this work, approximately 27% of PHCNPs in Ontario are currently not practising or are unable to find employment within their scope of practice, even though they indicated that they would like to full-time employment as a PHCNP. Among those PHCNP survey respondents who indicated they were not working, 29% would consider relocating to a rural or remote area for either a temporary or long-term position (IBM, 2003).

It is reported that the Ontario Ministry of Health and Long Term Care is creating an additional 348 PHCNP positions from 2003 to 2006 (IBM, 2003). With the creation of these positions and an investment of \$1.7 million annually for PHCNP education programs, it anticipated that

PHCNPs will play a role in enhancing access to primary health care services in small, rural and under-serviced communities (IBM, 2003). The MOHLTC has reinforced in numerous reports that PHCNPs have an important role in both addressing physician shortages and in enhancing primary health care across the province (IBM, 2003).

The distribution and mix of health care providers and the way that they are deployed varies. For example, in a study by the College of Family Physicians of Canada, it was reported that 25% of family physicians worked in "solo" practices as opposed to group practices. This number is decreased since 1997 when 31% reported practising in silo practices as opposed to in collaborative practices (College of Family Physicians of Canada, 2001). In primary health care reform initiatives, there seems to be a growing interest in having physicians, PHCNPs, and other health providers work together to deliver services. In the U.S., it has been reported that although at least 20% of the population lives in rural areas, less than 11% of the nation's physicians are practising in non-metropolitan areas (National Rural Health Association, 1998). This poor distribution of physicians may be the encouragement for medical students to take on specialist as opposed to generalist roles.

#### *4.3.2 Trends in Legislation and Regulation of NPs in Canada*

The legislation governing PHCNP practice is varied across Canada. The provinces and territories are at various stages in their consideration and integration of the role of the PHCNP in health care delivery (CNA, 2003). This indicates that the PHCNP role has been evolving without a consistent national legislative framework. In a review of this area, the CNA (2003) reported that the titles used across the country for PHCNP roles are defined differently between and across jurisdictions. In addition, the PHCNP title itself is not a protected title in many jurisdictions. An unprotected PHCNP title means that nurses who have not met the specific criteria to be regulated in extended/expanded practice may use the PHCNP title. While jurisdictions such as Nova Scotia, Newfoundland and Labrador, and Northwest Territories have protected title in their legislations, the PHCNP title is not protected in other jurisdictions like Ontario and Alberta (CNA, 2003). The scope of what PHCNPs do varies across the country, tending to be driven by the specific needs of the practice setting. Furthermore, differing legislation may contribute to the significant variation in scope of practice for PHCNP (IBM, 2003). There is no consistent definition of scope of practice for PHCNP roles across and within jurisdictions in Canada (Advisory Council on Health Delivery and Human Resources, 2001). The following is a brief synopsis of the current state of NP legislation and regulation across Canada by jurisdiction.

##### ***Ontario***

Legislated scope of practice relates to primary care functions only. Controlled acts are to be performed by RNs with an extended class designation via amendments to the *Registered Nurses Act 1991*.

##### ***British Columbia***

Extended/expanded practice has historically been undertaken by delegated acts, which are established by working arrangements according to location, organization and training. RNABC has guidelines for Delegated Medical Functions. Legislation to formalize the NP role is presently in draft and is expected to be approved in the spring of 2005.

##### ***Alberta***

NPs are legislated through the 1999 *Health Professions Act* which was amended in 2002 under

the NP Regulations of the *Public Health Amendment Act*.

### ***Saskatchewan***

NP scope of practice had been defined by province-wide clinical practice guidelines and NPs have been governed through an amendment in 2000 to the *RN Act*. The government approved NP regulations in May 2004.

### ***Manitoba***

Under the new legislation regarding extended practice regulation, which was anticipated to be passed at the end of 2004, regulations will be developed for required competencies in extended/expanded nursing practice. The Manitoba Association of Registered Nurses has established standards of practice, which apply to all practising registered nurses in the province regardless of their roles or practice settings.

### ***Quebec***

No legislation is currently in place to regulate PHCNPs. However, a recently released report to the Quebec government suggested a new category of NP be established to accommodate broad scope of responsibilities and services that nurses in northern and isolated areas provide. The province is also moving towards adopting umbrella legislation (Bill 90) for health professionals to expand the scope of practice of each profession and encourage collaborative practice. Currently, delegated medical functions are not necessarily supported by protocols and concerns have been raised by nurses about situations where they could be exposed to liability and have no protection.

### ***New Brunswick***

NP legislation was approved in May 2002. However, at this time, only PHCNPs are eligible for registration/licensure.

### ***Prince Edward Island***

On December 16, 2004 Bill 13 was passed through an amendment of the *Registered Nurses Act* that allowed for the hiring of NPs for pilot projects only.

### ***Nova Scotia***

NPs are regulated through the *RN Act*, which was amended to include NP practice in 2002. Scope of practice has been defined by delegation of medical functions under guidelines negotiated between the College of Physicians and Surgeons of Nova Scotia and the College of Registered Nurses of Nova Scotia. A Diagnostic and Therapeutics Committee establishes and authorizes practice schedules for NPs. The NS Department of Health has recently put forward a proposal for legislative change to introduce omnibus/umbrella legislation via a *Regulated Health Professions Act*.

### ***Newfoundland and Labrador***

In 1998 an *NP Act* was introduced with a number of subsequent amendments. The Association of Registered Nurses of Newfoundland and Labrador approves standards of practice and competencies for primary health care NPs.

### ***Yukon***

There is no distinct legislation for NPs at this time. Employers have adopted the Medical

Services Branch (MSB) Scope of Practice guidelines for community health nurses, nursing stations and health care treatment facilities. The government approved a new *Health Professions Act* in 2003, which governs the practice of nurses.

#### ***Northwest Territories and Nunavut***

In June 2002 an amendment was made to the *Nursing and Pharmacy Act* to establish a separate register for NPs and registration for NPs who are parties in collaborative practice. The act was amended again in 2003.

(Source: Advisory Committee on Health Delivery and Human Resources in IBM, 2003; various provincial websites).

*For a more comprehensive description of the various issues and factors related to NP practice in each of the provinces and territories in Canada, please refer to Table 1 in Appendix A.*

Provincial/territorial nursing regulatory bodies are responsible for the regulation of all RNs including PHCNPs. Regulations define the scope of practice; set standards for education; identify the ethical components of practice; and establish systems for accountability. As IBM (2003) suggests, the process, which determines exactly how the legislation is operationalized, varies across jurisdictions. As such, there are neither national nor consistent guidelines and criteria regarding scope of practice for PHCNPs (IBM, 2003).

The scope of nursing practice refers to the activities nurses are educated and authorized to perform. It is established through legislated definitions of nursing practice complemented by standards, guidelines and policy position issued by nursing regulatory bodies (IBM, 2003). When the activities are outside the legislated scope of nursing practice, nurses require additional regulatory authority. While the jurisdictional laws provide guidance on functions and activities that constitute the scope of nursing practice, as previously identified, it has been found that no consistent definition of PHCNP scope of practice across Canada (Jardali, 2003; IBM, 2003).

In regards to the regulatory component, there are many laws in Canada that require PHCNPs to practice in “collaboration” with physicians, but do not clearly delineate what this term means. One study (IBM, 2003) suggested that regulatory variations across jurisdictions create more confusion about what independent practice by PHCNPs means and leads to questions about whether, in fact, PHCNPs should practice autonomously. According to the Canadian Medical Protective Association (IBM, 2003), physicians, as a result of the regulatory variation and the different interpretations of the term “collaboration” are uncertain about what it means to practise collaboratively. A clear definition of the PHCNP role and a clear understanding of the terms of a collaborative agreement between PHCNPs and physicians are required.

Competent practice is also determined by regulation (IBM, 2003). Due to the fact that there is no national regulatory framework currently in existence in Canada, Jardali (2003) suggested that physicians would face challenges in the verification of competency levels when they receive referrals from PHCNPs. It is suggested that a national licensing exam for PHCNPs may help to enhance the credibility of the PHCNP role.

#### **4.4 Population Health Related to Health Human Resource Planning and Modeling**

There are more than 30 regulated health professions in this country, and their roles, while often perceived to be unique, often overlap (Commission on the Future of Health Care in Canada in Tomblin Murphy & O’Brien-Pallas, 2002). Changing scopes of practice based on the needs of



the population is a challenge as there are tensions between and among health professions that are complicated by factors such as union contract and issues of self-regulation (Tomblin Murphy & O'Brien-Pallas, 2002).

In their discussion paper presented to the Commission on Health Care Reform in 2002, Tomblin Murphy & O'Brien Pallas advocate an approach to health human resource planning that begins by examining the dynamic nature of population health needs. Population characteristics related to health levels and risks reflect the varied characteristics of individuals in the population that create the demand for curative and preventative health services. As these researchers indicate, consideration must be given to individuals' responses to their environment, the economy and the accessibility and quality of their health care system (Tomblin Murphy & O'Brien-Pallas, 2002). The health human resource planning process must be driven by outcomes; these outcomes of interest are related to the system, providers, and the health of Canadians.

As indicated earlier in this paper, HHR planning has been supply-driven in general with scant attention given to demand factors and needs of the population. Demand factors are varied and may impact on the future demand for health resources (Tomblin Murphy & O'Brien-Pallas, 2002). A comprehensive HHR planning model, such as the conceptual framework developed by O'Brien-Pallas et al. (2001), will be needed to address as many of these factors as possible.

PHCNPs, as part of a collaborative practice team, deliver comprehensive, primary health care to meet the needs of a particular practice population, through the effective application of knowledge and skills (Way et al., 2001). PHCNPs make contributions to both population and individual health promotion through their unique knowledge and skills. Based on the review of the literature, a common emphasis in the primary health care initiative reports is the goal of increasing access to primary health care through the integration of PHCNPs into collaborative practice (Way et al., 2001). Based on the PHCNP's role in approaching primary health care from a population health perspective, the role of population health will be a key driver in the planning for the supply and distribution of PHCNPs in Canada. There is a need to evaluate the impact of the role of PHCNPs on population health outcomes, an area where there is presently very little evidence to date.

#### **4.5 Productivity**

Productivity indicators provide an understanding of the efficiency of PHCNPs in the delivery of services. There is evidence, both nationally and internationally that the PHCNP role has the potential to significantly contribute to the resolution of current health care issues through the provision of quality patient care and the reduction of costs (Kinnersley et al., 2000; Mundinger et al., 2000; Shum et al., 2000; Mundinger, 1994; Feldman et al., in CNA, 2003). It has been reported on numerous occasions that care provided by PHCNPs, in comparison to care provided by general/family physicians can result in comparable health outcomes and that patients are more satisfied with the care provided by PHCNPs (Laurant et al., 2004). Furthermore, research reinforces that PHCNPs enhances the public's access to quality care at cost savings to the system (Mundinger, 1994; Mundinger et al., 2000; Kinnersley et al., 2000; Shum et al., 2000). In a study carried out by the Council of Ontario Universities in 1985, it was estimated that 40 to 90 % of primary care physician visits could be handled by PHCNPs (Way in CNA, 2002). Similarly, research carried out in the United States also reported that PHCNPs carry workloads consisting of 80 – 90% of the workloads of primary care physicians, without the need for consultation or referral (Hummel & Pizada, 1994). To examine issues of productivity related to PHCNPs, it is

important to have comparable, consistent data of good quality related to the supply of PHCNPs in Canada.

#### **4.6 Distribution**

This key factor examines the distribution of PHCNPs based on both the geographical setting and the sector of health care. It is well documented that the majority of PHCNPs in Ontario chose to practice in primary health care settings. In a study by Sidani et al. (2000), it was reported that 73% of the 227 NPs certified by the CNO as Extended Class chose to work in primary care settings, 90% were working in either community health centres or physician practices, while 10% were working in outpost settings. In Ontario, Community Health Centres are typically established in medically underserved areas in rural communities or inner city urban areas (IBM, 2003). Community Health Centres provide a comprehensive range of health care, health education, community development and social services. These communities have high-risk populations which do not have ready access to primary care services. As of 2000, there were approximately 55 Community Health Centres in operation across Ontario (IBM, 2003).

Understanding where and how PHCNPs work is a challenge related to variety of factors, including a lack of data. It is estimated that as many as one-third of PHCNPs are employed in activities other than patient care as a result of their advanced education. They are recruited to roles in management, research, education, and consulting. Approximately 85% of PHCNPs in the United States are providing primary care (Hooker & Berlin, 2002) with many of these providing care in rural and/or underserved areas. It was also cited that approximately 21% of physicians in the United States are working with PHCNPs. There is a need to recognize, value, and utilize PHCNPs and other health care providers to create and sustain a collaborative health care workforce designed to meet the needs of the populations that they serve.

#### **4.7 Funding**

According to Birch et al. (2004), financial indicators relevant to health human resource planning include: 1) expenditure on each provider group by source; 2) size of jurisdictional economy; 3) Ministry of Health expenditure on health care by program; 4) Ministry of Health expenditure on providers by type of provider for each program; 5) salaries/average earnings per provider by type of provider and program/sector; 6) average household disposable income; 7) prevalence of private insurance coverage; and 8) expenditure of workers compensation boards or equivalent.

In terms of funding models for PHCNPs, they are compensated through a number of different mechanisms. The CNA (2002) outlined five approaches to compensation for PHCNP services.

1. Budget/request-based funding specifies the cost of delivering services. The advantages of this approach are that it is built on administrative and historical information. Also, it focuses on group services to highlight roles of nurse practitioners and other professionals. The disadvantages of this approach are that this approach is not tied to the health status of the population being served; additionally, outcomes are not captured and linked to a particular profession.
2. Utilization-based approaches allocate funding according to past use of particular services. The advantages of this approach are that the data is available, and there is comparability among regions. The disadvantages of this approach is that it is not linked to assessment of health needs; it is also difficult to introduce new services.

3. In capitation/population-based approaches, funding is allocated for health services based on population demographics. Advantages to this approach are that it groups services and providers, and encourages appropriate health human resource use. The main disadvantage is that administration is complex.
4. Need-based approaches allocate funding among provider agencies based on assessment of relative health status and outcomes of populations served. The significant advantage is that this approach targets resources and services to maximize population health. The main disadvantage of this approach is the absence of data.
5. The fee for service approach is described as direct billing to a client's health insurance plan for insured health services. Although it does promote focus on the volume of interventions, it is not recommended as it distracts from the comprehensive, case management care of NPs (CNA, 2002).

In Nova Scotia, the government has provided the funding to pay the salaries of several PHCNPs who have participated in pilot initiatives in selected sites through the Nova Scotia Primary Health Care Nurse Practitioner project (Martin-Meisner, 2004). It is reported that in Ontario, services provided by PHCNPs are not insured benefits under provincial health insurance plans (IBM, 2003). In Ontario, physicians cannot claim for services if they have been assigned or delegated to work with a PHCNP. However they can claim for common office procedures that have historically been delegated to an RN in a physician's private office. In these circumstances, the PHCNP must be an employee of the physician (IBM, 2003). Two major studies in Canada have also recommended that new funding methods be implemented for physicians so that they will be adequately compensated for working with a PHCNP, as many speculate that this funding issue has posed significant problems in integrating the PHCNP role into primary health care settings (Way et al., 2001; Advisory Committee on Health Delivery and Human Resources, 2001). In the United States, NPs are able to bill at 85% of the physician rate when they collaborate with physicians.

In Canada there is currently no public policy to support a strategy for funding NP services over the long term (CNA, 2003). As previously identified, there is also considerable variation in remuneration and funding models for PHCNP practice throughout the country. Funding models must reflect the varied responsibilities and legal liabilities of the role of the nurse practitioner (CNA, 2002).

Financial competition, especially within the fee-for-service environment and concerns regarding job security has been outlined as barriers to effective collaborative relationships. In Ontario, 31% percent of NPs identified "limitations of funding" as a barrier to the integration of their role in primary health care (IBM, 2003). Further, 46% of physicians working with NP have agreed that inadequate funding for NP salary is a barrier to integration (IBM, 2003). Almost one-third of NPs identified lack of remuneration as the most negative aspect of their role (IBM, 2003). In regards to funding the integration of NPs into primary care in Ontario, key issues were outlined. These issues included: inequity of salaries for NPs across the province for similar Ministry of Health and Long Term Care (MOHLTC) positions; requirement for NPs to pay additional funds other than those from MOHLTC for overhead and other operating expenses; lack of yearly cost of living or other adjustments; lack of incentives and relocation costs to recruit NPs to under serviced areas; and new NP positions funded at a different level than the current positions (IBM, 2003). These issues will need to be addressed by governments across Canada if they are indeed

serious about recruiting and retaining NP's into primary health care.

In terms of funding for health human resource modeling and data requirements, the funding factor provides an economic context for health human resource decisions and involves the estimation of the future size of the economy from which PHCNPs will be funded (Tomblin Murphy et al., 2004). Funding also incorporates questions about financing health human resource modeling initiatives and the data requirements needed to produce meaningful planning outcomes. There must be a significant investment in creating and maintaining readily accessible data bases that allow planners to compare differences between and across jurisdictions, to understand the needs, and to determine whether the system is working in effective and efficient ways to meet those needs (Tomblin Murphy & O'Brien-Pallas, 2002). Governments will need to determine their capacity and political willingness to engage in the funding of such databases, and to see it as a long-term investment.

#### **4.8 Management, Organization & Delivery of Services**

Management and organizational characteristics influence the amount and quality of care provided, provider health and satisfaction, and costs associated with the delivery of services (Tomblin Murphy et al., 2004). It is known that currently the PHCNP role has already been, or soon will be, legislated in all 10 provinces and two territories (MacDonald et al., 2004). However, there is very little literature that describes the various practice models. Practice models, however, are described as either being either independent (autonomous) or collaborative (IBM, 2003). Under the autonomous practice model, PHCNPs practice autonomously within their defined scope, consult with the physician when necessary and do not provide substitution for medical care. However, there are times when PHCNPs replace physician services in rural, remote and under-serviced areas. In these circumstances, funds must be transferred from physician compensation mechanisms to alternative compensation arrangements.

Collaborative practice, on the other hand, has been defined as an inter-professional process for communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided (Way et al., 2000). Some Canadian literature suggests that the preferred practice method is that of a collaborative practice model (Way et al., 2000; Advisory Committee on Health Delivery and Human Resources, 2001). Furthermore, Way et al. (2000) found that the required elements for a successful collaborative practice include: responsibility and accountability; coordination; communication; cooperation; assertiveness; autonomy; and mutual trust and respect. Regarding the role and functions of the collaborative practice partners, Way et al., (2000) concluded that it is necessary to identify the needs of the practice population and the specifics of the practice setting. Based on that assessment, she suggests that clear decisions regarding the services that need to be offered by the groups be made, along with decisions about the services to be offered by individual health care providers. Arrangements within collaborative practices vary based upon the practice structure and other behavioral elements. Jones and Way have constructed PHCNP-physician dyad guidelines to support the ability for providers to recognize and respect the others' efforts to integrate their situation into responsible patient care, and to build mutuality of concern (IBM, 2003).

HHR planning for PHCNPs for rural, remote or under-serviced areas of the country needs to be undertaken and must consider the development of formal funding mechanisms to support PHCNP-physician collaboration. Similarly HHR plans are necessary to increase the number of

Aboriginal nurses practicing in Canada. Consistent with the First Ministers' Health Accord (2004), jurisdictional and federal governments are committed to PHCNPs playing a major role in primary health care to enhance access to health services in rural and remote communities.

#### **4.9 Resource Deployment and Utilization**

Utilization reflects the nature and type of resources utilized by the population to meet health needs. The efficiency and effectiveness of service delivery depends greatly on the efficient and effective deployment of and use of personnel (Tomblin Murphy et al., 2004). Decisions made about the deployment and use of personnel across all sectors of the system influences access to services and utilization by the population and outcomes (O'Brien-Pallas, 2002).

As the aforementioned section describes, there are various delivery models in which PHCNPS can practise. In one survey conducted with 44 sites participating, it was found that RNs working in advanced practice roles provided a wide array of services under similar, as well as disparate collaborative practice arrangements (Advisory Committee on Health Delivery and Human Resources, 2001). Despite observed variations, the norm was for nurses and physicians, as well as other health professionals to engage in an interactive process of joint decision-making and problem solving based on mutual respect and appreciation for each other's knowledge, skills and abilities. In many models PHCNPs invariably work collaboratively with at least one general/family practitioner, one or more other nurses, and sometimes with other allied health care providers. A multidisciplinary approach is often apparent when PHCNPS are working in larger community health centers or clinics in which other health providers are deployed. In this type of model, the deployment of PHCNPs is ideally based on the needs of the population and of the community at large. The evidence has demonstrated over and over that PHCNPs influence both system and health outcomes. In addition, PHCNPs make valuable contributions when deployed in institutional settings provided that they are given both freedom and the resources to practice within a primary health care framework. These institutional based settings could include: long-term care centres; ambulatory care or preventative service clinics in acute care settings; community health clinics; and family clinics.

In considering the deployment of PHCNPs it is necessary to examine the level of autonomy PHCNPS possess and how the frameworks and practice models impact on autonomy. According to the CNA (2003), PHCNPs work both autonomously and collaboratively with other health care providers. However, the trend in the United States is towards NP as independent practitioners, which has introduced concerns about the capabilities of NPs in engaging in care independent of physician involvement or collaboration (Alpert et al., 2002). The capacity of PHCNPs to work to their full scope of practice must also be a consideration in planning for health care services. In Ontario, some PHCNPs have the authority to practice independently from a physician, and to operate their own practices (College of Nurses of Ontario in CHSRF, 2002). In provinces such as Nova Scotia there are more rigid and specific requirements for consultations, prescribing authority and ordering diagnostic tests.

#### **4.10 System and Health Outcomes**

This factor includes the costs associated with the resources dedicated to health services (O'Brien-Pallas, 2002; Tomblin Murphy et al., 2004). There is already ample evidence both nationally and internationally regarding the impact of the PHCNP role on health system

outcomes. It has been demonstrated that PHCNPs provide quality care and are a cost-efficient way to deliver services (Mundinger et al., 2000; Venning et al., 2000; Kinnersley et al., 2000; Horrocks et al., 2002). There is a need, however, to further develop evaluation mechanisms and processes to measure this dimension in terms of broader outcomes related to overall population health. However, studies have consistently demonstrated that advanced practice nursing results in enhanced health outcomes such as reduced rates of smoking and alcohol use (Green & Simons-Morton, 1984), shorter hospital stays (Brooten et al., 1989; Cohen, 1991; Ethridge, 1991; Ethridge & Lamb, 1999; Lamb & Huggins, 1990; Marchette & Holloman, 1986; McKenzie, 1989; Naylor, 1990), decreased hospital admissions, and more appropriate office visits (Prescott, 1993; Shamian & Chalmers, 1996). It has also been shown that better health outcomes occur when the advanced practice nurse and physician work together (Schultz et al., 1997). Such nursing interventions enable patients to maintain their health and thus reduce the costs associated with more expensive medical and emergency services (Brown, 1984; Denton et al., 1993). More recently, a systematic review of whether NPs working in primary health care can provide care equivalent to physicians concluded that increasing the availability of NPs in primary health care is likely to lead to high levels of patient satisfaction and high quality care (Horrocks et al., 2002).

Clinical and research data support the positive effects of expanded nursing practice in general (Brown & Grimes; Chambers & West; Spitzer et al.; Feldman, et al., & Revely, in Advisory Committee on Health Delivery and Human Resources, 2001) and research clearly and consistently demonstrates that PHCNPs in particular can provide care that is safe, effective and comparable to physicians in a range of situations (CHSRF, 2002). There is an ongoing need to study the impact of the role of NPs on health and system outcomes.

#### **4.11 Provider Outcomes**

The need to monitor the nurse outcomes as the role of the PHCNP becomes further integrated in the health system must continue to be a priority. Studying the impact of the role on the provider outcomes such as nurse satisfaction, levels of burnout, and levels of productivity is critical.

#### **4.12 Other Factors**

Ongoing study of the contextual, political, economic, and technological and social factors influencing HHR planning for PHCNPs needs to be an ongoing process in HHR. Presently political and social factors, as opposed to the changing needs of the population seem to be influencing HHR planning for NPs.

In addition to the changing needs of the population, HHR planning decisions for PHCNPs must take into consideration the power and the role of physician groups in influencing decisions regarding the supply and scope of practice of PHCNPs; the impact of increasing the role of PHCNPs on health expenditures; whether technology will impact on the work of PHCNPs; and, what role is played by socioeconomic factors of populations in various regions in planning for and implementation of NPs.

## **5. Synthesis and Summary of Findings**

There is an abundance of quality evidence beginning in 1970 that clearly demonstrates the

positive impact of PHCNPs on both system and health outcomes. Research consistently demonstrates that PHCNPs can provide care that is safe, effective and comparable to physicians in a wide range of situations and circumstances (CHSRF, 2002). Most of the literature pertaining to HHR planning for PHCNPs is located in the grey literature as opposed to the empirical literature. It is apparent that jurisdictional, regional, national, and international governments and policy makers are interested in making PHCNPs a key part of the reform process as primary health care systems continue to transform and reform. Overall, the literature appraised for this report emphasizes both the commitment and notion that the PHCNP role may be part of the solution to resolve some of the most prevalent current health care delivery issues including access, wait times, efficiency and effectiveness of systems, and costs.

As comprehensively outlined in the complementary paper on recruitment and retention of PHCNPs, it is apparent that both NPs and the physicians with whom they collaborate have identified several barriers and facilitators to engaging in collaborative practice. Remuneration issues, clarity of scope of practice and a lack of understanding about the definition and nature of collaborative practice have all presented barriers to the efficient deployment of PHCNP human resources into the health care system.

Current health human resource planning practices, including the approaches that have attempted to determine the appropriate number and deployments of PHCNPs, tend to be intermittent, based on incorrect assumptions, focusing on single disciplines, and are often not linked to appropriate analytical models (O'Brien-Pallas, 2002; Tomblin Murphy & O'Brien-Pallas, 2002). The reliance on supply and utilization approaches and lack of conceptual frameworks and analytical models has led to the continual cycle of shortages and surpluses in health care human resources witnessed by Canadian jurisdictions and other countries.

Health human resource planning for PHCNPs in most Canadian jurisdictions and countries is limited by data availability, data quality, and timeliness of data collection. HHR planning has traditionally been based on supply and past service utilization. It has been argued that governments have used these methods for HHR planning due to the fact that data for these approaches is more easily accessed and they are less costly to implement. However, it appears that there are major gaps in all data related to PHCNPs; this is a concern as communities, governments, health services researchers, professional associations, and unions move forward with HHR planning exercises that are outcome-driven and based on the needs of populations. Furthermore, even supply data on PHCNPs is limited and this concern is well articulated in the literature.

One of the key challenges for PHCNP planning is the immediate need for information and evidence to support NP HHR-related policy. Most of the data available pertaining to PHCNPs is self-reported and is accessed through either nursing registries and/or from the Canadian Community Health Survey (CCHS) Supplemental Health Services Access Survey (2002). Grey literature consistently emphasized that data must be adequately resourced, with both human and financial resources, so that the reliability, comparability, and comprehensiveness of HHR related data are enhanced. Governments, researchers, and health services executives often presume that the data which form the basis of resource planning are currently available and of good quality. Regrettably, there is very little data that pertains to PHCNPs. Presently an examination of the gaps in data in all Canadian jurisdictions is being carried out by the CNA (2004) as part of the Canadian Primary NP Initiative funded through the Primary Health Care Transition Fund.

Needs-based approaches, in which resource requirements are based on estimated population health needs, create greater data demands than those required for supply/utilization-based planning (O'Brien-Pallas et al, 2001; Tomblin Murphy & O'Brien Pallas, 2002). The requirement to link to outcomes to the deployment and utilization of resources will create even greater data challenges. To plan services for PHCNPs and/or to model human resources requirements without data of satisfactory quality will only continue to lead to unreliable estimates of future human resource needs and flawed service planning models (O'Brien-Pallas 2002). HHR planning models based on the health needs of the population provide more meaningful information regarding the effective deployment of human resources. To build a workforce that is designed to meet the health needs of our communities means that HHR planning must be predicated on comprehensive information that promotes sufficient numbers of relevant health providers who can work together in ways that maximize health outcomes (Tomblin Murphy & O'Brien-Pallas, 2002).

## **6. Overall Conclusion**

The purpose of this project was to review, synthesize and analyze current literature on Health Human Resource planning related to PHCNP practice to inform recommendations to effectively carry out HHR planning and management for PHCNPs in Canada. Findings from both the grey and empirical literature from Canadian jurisdictional and federal governments, professional associations, and unions and were appraised guided by a HHR Conceptual Framework. It is evident from the literature that there has been minimal planning for the education, employment and deployment of PHCNPs internationally and in the various jurisdictions in Canada.



## References

- Advisory Committee on Health Delivery and Human Resources (2001). Authored by Hanrahan, C., Way, C., Housser, J., Applin, M. (2001, March). *The nature of the extended/expanded nursing role in Canada. Final Report*. (Unpublished report). Consultants: Centre for Nursing Studies and the Institute for the Advancement of Public Policy (Ontario, Saskatchewan and Newfoundland).
- Alberta Association of Registered Nurses. (n.d). *Nurse Practitioners: Vital members of the health-care team*. Calgary: Author.
- Alpert, P., Fjone, A., & Candela, L. (2002). Nurse practitioner: Reflecting on the future. *Nursing Administration Quarterly*, 26 (5), 79-89.
- Berlin, L. 2002. Trends in the supply of physician assistants and nurse practitioners in the United States. *Health Affairs*, 21(5), 174 – 180.
- Birch, S., Lavis, J., Markham, B., Woodward, C. & O'Brien-Pallas, L. (1994). *Nursing requirements for Ontario over the next twenty years: Development and application of estimation methods*. McMaster University, Hamilton, Ontario: CHEPA Working Paper Series Paper, 94-13.
- Birch, S., O'Brien-Pallas, L., Alksnis, C., Tomblin Murphy, G., & Thomson, D. (2003). Beyond demographic change in health human resources planning: An extended framework and application to nursing. *Journal of Health Services Research and Policy*, 8(4), 225-229.
- Birch, S., Eyles, J., Hurley, J., Hutchison, B., & Chambers, S. (1993). A needs-based approach to resource allocation in healthcare. *Canadian Public Policy*, 19, 68-85.
- Birch, S., Eyles, J., & Newbold, K. (1993). Equitable access to health care: methodological extensions to the analysis of physician utilization in Canada. *Health Economics*, 2(2), 87-101.
- Birch, S., Eyles, J., & Newbold, K. (1996). Proxies for healthcare need among populations: Validation of alternatives—a study in Quebec. *Journal of Community Health*, 50(5), 564-9.
- Black, C., & Burchill, C., & Roos, N. (1995). The population health information system: Data analysis and software. *Medical Care*, 33(12), DS127-DS131.
- British Columbia Ministry of Health Services (November 2004). *Toward better health care for British Columbians*. Vancouver: Author. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/cpa/publications/betterhealthcare\\_2004.pdf](http://www.healthservices.gov.bc.ca/cpa/publications/betterhealthcare_2004.pdf).
- British Columbia Ministry of Health Services (May 2004). *Making Progress: Primary Health Care Renewal in British Columbia – Putting Patients First*. Vancouver: Author. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/phc/pdf/phc\\_renewal\\_BC\\_may2004.pdf](http://www.healthservices.gov.bc.ca/phc/pdf/phc_renewal_BC_may2004.pdf)

- British Columbia Ministry of Health Services & Ministry of Health Services Planning. (n.d.). *Primary Health Care Compendium*. Vancouver: Author. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/phc/pdf/phc\\_compendium.pdf](http://www.healthservices.gov.bc.ca/phc/pdf/phc_compendium.pdf)
- British Columbia Ministry of Health Services. (n.d.). *Registered Nurses: Working in Partnership with the Health Care Team*. Fact Sheet. Vancouver: Author. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/ndirect/pdf/RN\\_Fact\\_Sheet.pdf](http://www.healthservices.gov.bc.ca/ndirect/pdf/RN_Fact_Sheet.pdf).
- British Columbia Ministry of Health Services. (n.d.). *Nurse Practitioners: Working in Partnership with the Health Care Team*. Fact Sheet. Vancouver: Author. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/ndirect/pdf/NP\\_Fact\\_Sheet.pdf](http://www.healthservices.gov.bc.ca/ndirect/pdf/NP_Fact_Sheet.pdf)
- British Columbia Ministry of Health Services. (n.d.). *Primary Health Care Practice Models*. Vancouver: Author. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/phc/pdf/phc\\_practice\\_models.pdf](http://www.healthservices.gov.bc.ca/phc/pdf/phc_practice_models.pdf)
- British Columbia Ministry of Health Services & Ministry of Health Services Planning. (January, 2003). *Renewing Primary Health Care for Patients*. Vancouver: Authors. Retrieved December 12, 2004, from <http://www.healthservices.gov.bc.ca/phc/pdf/renewphc.pdf>
- British Columbia Ministry of Health Services. (March 2004). British Columbia Primary Health Care Transition Fund Newsletter. Issue 3. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/phc/pdf/phctf\\_newsletter3.pdf](http://www.healthservices.gov.bc.ca/phc/pdf/phctf_newsletter3.pdf)
- British Columbia Ministry of Health Services. (November 2004). *Healthy British Columbia: British Columbia's Report on Nationally Comparable Performance Indicators*. Vancouver: Author. Retrieved December 12, 2004, from [http://www.healthservices.gov.bc.ca/cpa/publications/pirc\\_2004.pdf](http://www.healthservices.gov.bc.ca/cpa/publications/pirc_2004.pdf)
- Buchan, J., & Edwards, N. (2000). Nursing numbers in Britain: The argument for workforce planning. *British Medical Journal*, 320(7241), 1067-1070.
- Canadian Health Service Research Foundation. *National Health Human Resources Roundtable: On the Way to Integrated Health Human Resource Planning Final Report*. (Prepared by Nancy McKay). Ottawa: Management Dimensions, December 12, 2002.
- Canadian Health Services Research Foundation. (2003, May). *A roundtable on integrated health human resource planning*. Ottawa: Author.
- Canadian Health Services Research Foundation (2002). *Mythbusters: Myth – Seeing a nurse practitioner instead of a doctor is second-class care*. Ottawa: Author. Retrieved November 12, 2004, from [http://www.chsrf.ca/mythbusters/pdf/myth8\\_e.pdf](http://www.chsrf.ca/mythbusters/pdf/myth8_e.pdf)
- Canadian Institute for Health Information. (2001). *Canada's health care providers*. [electronic version]. Ottawa: Author. Retrieved November 10, 2004 from [http://secure.cihi.ca/cihiweb/dispPage.jsp?cw\\_page=AR\\_35\\_E](http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=AR_35_E)
- Canadian Medical Association (2002). *Physician Resource Planning in Canada*. Ottawa, Ontario, Canada: Author.  
<http://www.cma.ca/cma/menu/displayMenu.do?skin=130&pMenuId=2&pSubMenuId=6>

- Canadian Medical Protective Association. (2004). *CMPA Issue: Liability Potential Barrier to Practice*. Ottawa: Author
- Canadian Medical Protective Association. (August 2002). *CMPA Discussion Paper: Physician liability concerns in primary and secondary health care reform*. Ottawa: Author.
- Canadian Nurses Association. (2004, January 14). *HHR Knowledge series, Summary of discussion*. Ottawa: Author.
- Canadian Nurses Association (2004). *Nurse Practitioners in Canada*. Retrieved October 30, 2004, from [http://www.cna-nurses.ca/pages/career/nurse\\_practitioners\\_in\\_Canada.htm](http://www.cna-nurses.ca/pages/career/nurse_practitioners_in_Canada.htm)
- Canadian Nurses Association (2003). *Brief to the Standing Committee on Finance. Pre-Budget Consultations*. Ottawa: Author.
- Canadian Nurses Association (2002, March). *Fact Sheet: Cost Effectiveness of the Nurse Practitioner Role*. Ottawa: Author.
- Canadian Nurses Association. (2002, March). *Fact Sheet: Financing Nurse Practitioner Services*. Ottawa: Author.
- Canadian Nurses Association. (2000). *Rebuilding Canada's Health System Starts with Renewing the Nursing Workforce: Pre-Budget Submission*. Ottawa: Author.
- Canadian Nurses Protective Society. (2004). Nurse Practitioners & Liability Protection. *RN Journal*, July, 22-23.
- Canadian Nurses Protective Society. (n.d.). *Identification of Risk for Nurse Practitioners*. (PowerPoint presentation to the Ontario Ministry of Health and Long Term Care.). Ottawa: Author.
- Capital Health. (2004). *Capital Health Guidebook to the NP Regional Position Description and Practice Parameters*. Edmonton, Alberta: Capital Health, Regional Nursing Affairs.
- Caty, S., Tilleczek, K., Pong, R., Michel, I., and Lemieux, S. (2003). Continuing Education Needs of Nurse Practitioners in Rural Ontario. *Research in FOCUS on Research*. Laurentian University, Sudbury, Ontario: Centre for Rural and Northern Health Research.
- Caty, S., Michel, I., Pong, R., and Stewart, D. (2002). Ontario NPs: A Snapshot Three Years After Graduation. *Research in FOCUS on Research*. Laurentian University, Sudbury, Ontario: Centre for Rural and Northern Health Research.
- College of Nurses of Ontario. (January 1, 2004). *College of Nurses of Ontario Membership Statistics Report*. Toronto: Author. 17-18.
- College of Registered Nurses of Manitoba. (2002). Registered Nurse (Advanced Practice) Draft Regulation. *Nurscene*, July 2002, 14-17.
- College of Registered Nurses of Nova Scotia. (2004). *Guidelines for the Development and Approval of Collaborative Practice Agreements: Primary Health Care Nurse Practitioners*. Halifax, Nova Scotia: Author. Retrieved December 20, 2004, from <http://www.crnns.ca/documents/Guidelines%20for%20CP%20Agreements%20PHC%20Nurse%20Practitioners>.

pdf

- Denton, F. Gafni, A., & Spencer, B. (1993). The SHARP computer system. A tool for resource planning in the health care sector. In Malek, M. Raxquinha, J., and Vacani, P. (eds.) *Strategic Issues in healthcare management*. John Wiley and Sons Ltd.
- Epstein, I.E., Kazanjian, A. and MacAuley, D. (March 2001). Health Professions Council Post-Hearing Update of Preliminary Report: Registered Nurses. Vancouver: British Columbia Ministry of Health Services. Retrieved December 12, 2004, from <http://www.healthservices.gov.bc.ca/leg/hpc/review/part-i/scope-regnurse.html>
- Epstein, I.E., Kazanjian, a. and MacAuley, D. (March 2000). Health Professions Council – Registered Nurses Scope of Practice Preliminary Report. Retrieved December 12, 2004 from <http://www.healthservices.gov.bc.ca/leg/hpc/reports.html>
- First Ministers' Meeting on the Future of Health Care. (2004). Retrieved November 21, 2004 from <http://www.hc-sc.gc.ca/english/hca2003/fmm/index.html>
- First Ministers' Accord on Health Care Renewal*. (2003). Retrieved November 20, 2004, from <http://hc-sc.gc.ca/english/hca2003/accord.html>
- First Ministers Health 2004: A 10 year plan to strengthen health care*. (September 16, 2004). Retrieved November 20, 2004, from Health Canada, First Ministers Meeting on the Future of Health Care 2004. <http://hc-sc.gc.ca/english/hca2003/fmm/index.html>
- Flanagan, L. (1998). Nurse Practitioners: Growing competition for family physicians. *Family Practice Management*, 5(9), 34-36 & 41-43.
- Fooks, C., and Maslove, L. (October 2004). *Health Human Resources Policy Initiatives for Physicians, Nurses and Pharmacists*. Ottawa: Canadian Policy Research Networks (Research Report H|07, Health Network).
- Government of Ontario. (1991). *Ontario Nursing Act, 1991, s.o. 1991, Chapter 32*. Toronto: Author. [electronic version]. Retrieved December 12, 2004, from [http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/91n32\\_e.htm](http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/91n32_e.htm)
- Government of Ontario. (1991). *Regulated Health Professions Act, 1991, s.o. 1991, Chapter 18*. Toronto: Author. [electronic version]. Retrieved December 12, 2004, from [http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/91n18\\_e.htm](http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/91n18_e.htm)
- Government of Prince Edward Island. (2004). *Health and Community Services Act, Chapter H-1.1*. Charlottetown: Author. Retrieved December 12, 2004, from [http://www.gov.pe.ca/law/statutes/pdf/h-01\\_1.pdf?PHPSESSID=43e0be01ca262ebc4956c13f7979dded](http://www.gov.pe.ca/law/statutes/pdf/h-01_1.pdf?PHPSESSID=43e0be01ca262ebc4956c13f7979dded)
- Government of Prince Edward Island. (2004). *Licensed Practical Nurses Act, Chapter L-10.1*. Charlottetown: Author. Retrieved December 12, 2004, from [http://www.gov.pe.ca/law/statutes/pdf/l-10\\_1.pdf?PHPSESSID=43e0be01ca262ebc4956c13f7979dded](http://www.gov.pe.ca/law/statutes/pdf/l-10_1.pdf?PHPSESSID=43e0be01ca262ebc4956c13f7979dded)
- Government of Prince Edward Island. (2003). *Public Health Act, Chapter P-30*. Charlottetown: Author. Retrieved December 12, 2004, from <http://www.gov.pe.ca/law/statutes/pdf/p-30.pdf?PHPSESSID=43e0be01ca262ebc4956c13f7979dded>
- Government of Prince Edward Island. (2003). *Prince Edward Island Nurses Act, Chapter N-4*. Charlottetown: Author. Retrieved December 12, 2004, from <http://www.gov.pe.ca/law/>

statutes/pdf/n-04.pdf?PHPSESSID=43e0be01ca262ebc4956cl3f7979dded

- Graham, L. (September 2004). Strengthening Primary Care in Nova Scotia Communities-- Database Extract: Summary Report. Halifax: Nova Scotia Department of Health. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/phcrenewal/evaluation/Extract%20Report.pdf>
- Graham, L., Napier, L., Loney, E. (September 2004). Impact of a Primary Care Office Information System: Summary Report. Halifax: Nova Scotia Department of Health, Primary Health Care Section. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/phcrenewal/evaluation/Impact%20Report.pdf>
- Health Canada. (December 1993). *Community Workload Increase System – Instructional Handbook*. Ottawa: Health Canada, Medical Services Branch.
- Health Care Human Resource Sector Council. (2003). *A Study of Health Human Resources in Nova Scotia 2003*. Halifax: Author. Retrieved December 13, 2004, from <http://www.gov.ns.ca/health/hhr/HHR%20NS%20Study%20Report%202003.pdf>
- Health Services Restructuring Commission. (December 1999). *Primary Health Care Strategy*. Toronto: Author. Retrieved December 14, 2004, from [http://www.health.gov.on.ca/hsrc/phase2/rr\\_phc\\_final.doc](http://www.health.gov.on.ca/hsrc/phase2/rr_phc_final.doc)
- Hooker, R. & Berlin, L. (2002). Trends in the supply of physician assistants and nurse practitioners in the United States. *Health Affairs*, 21(5), 174-79.
- Horrocks, S., E. Anderson, & Salisbury, C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal*, 324(7341), 819-823.
- Hummel, J., & Pirzada, S. (1994). Estimating the cost of using non-physician providers in primary care teams in an HMO: where would the savings begin? *HMO Practice*, 8(4), 162-4.
- IBM Business Consulting Services. (2003). *Primary Health Care NP Integration Study*. Toronto: IBM.
- Implementation Monitoring Subcommittee of the Joint Provincial Nursing Committee (JNPC). (2003). *Good Nursing, Good Health: The Return on Our Investment – Progress Report*. Toronto: Queen's Printer for Ontario (Catalogue No. 7610-2241149 300Mar/04). Retrieved December 1, 2004, from [http://www.health.gov.on.ca/english/public/pub/ministry\\_reports/nursing\\_roi\\_04/jpnc\\_roi\\_2004.pdf](http://www.health.gov.on.ca/english/public/pub/ministry_reports/nursing_roi_04/jpnc_roi_2004.pdf)
- Jardali, F. (2003). *Barriers to effective collaboration between nurse practitioners and family physicians*. (Discussion paper submitted to Health Canada by the Canadian Nurses Association, March 31, 2003). Ottawa: Canadian Nurses Association.
- Kazanjian, A. and Apland, L. (November 9, 2004). *Estimating National Health Human Resources Modeling Capacity*. Vancouver: The University of British Columbia, Faculty of Medicine Department of Health Care & Epidemiology.
- Kephart, G., Maaten, S., O'Brien-Pallas, L., Tomblin Murphy, G., and Milburn, B. (September 17, 2004). *Simulation Analysis Report*. Toronto: The Nursing Sector Study Corporation.

- Kinnersley, P., Anderson, E., Parry, K., Clement, J., Archard, L., Turton, P., et al. (2000). Randomized controlled trial of nurse practitioner versus general practitioner care for patients requesting 'same day' consultations in primary care. *British Medical Journal*, 320 (7241), 1043-1048.
- Laurant, M., Hermens, R., Braspenning, J., Sibbald, R., & Grol, R. (2004). Impact of nurse practitioners on workload of general practitioners: randomized control trial. *British Medical Journal*, 10(1136), 1-6.
- Lavis, J. & Birch, S. (1997). The answer is ..., now what was the question? Applying alternative approaches to estimating nurse requirements. *Canadian Journal of Nursing Administration*, 10(1), 24-44.
- Legislative Assembly of the Northwest Territories. *Summaries of Legislative Bills*. (n.d.). [online]. Retrieved from the Government web-site January 1, 2005, from: <http://www.assembly.gov.nt.ca/HouseBusiness/Legislation/Summaries-Archive4.html>
- LeGrow, Kathy. (December 4, 2001). *The Family Physicians Role in a Continuum of Care Framework for Newfoundland and Labrador: A Framework for Primary Care Renewal*. St. John's: Government of Newfoundland and Labrador. Retrieved December 12, 2004, from <http://www.gov.nf.ca/publicat/pcac/pcac.PDF>
- MacDonald, M., Schreiber, R., & Davis, L. (2004). *Exploring new roles for advanced nursing practice*. (Document prepared for the Canadian Nurses Association.) Ottawa: Canadian Nurses Association.
- Management Dimensions. (July 2004). *Nursing Service and Resource Management Plan*. Fredericton: Management Dimensions. Retrieved December 13, 2004, from [http://www.gnb.ca/0051/pub/pdf/Nursing\\_Service\\_Resource\\_Management\\_Plan-e.pdf](http://www.gnb.ca/0051/pub/pdf/Nursing_Service_Resource_Management_Plan-e.pdf)
- Markham, B., & Birch, S. (1997). Back to the future: A framework for estimating health-care human resource requirements. *Canadian Journal of Nursing Administration*, 10(1), 7-23.
- Martin-Misener, R., McNab, J., Sketris, I., & Edwards, L. (2004). Collaborative Practice in Health Systems Change: The Nova Scotia experience with the Strengthening Primary Health Care Initiative. *Nursing Leadership*, 17(2), 33-46.
- Mundinger, M.O. (1994). Advanced practice nursing: Good medicine for physicians? *New England Journal of Medicine*, 330(3), 211-214.
- Mundinger, M.O., Kane, R.L., Lenz, E.R., Totten, A.M., Tsai, W.Y., Cleary, P.D. et al. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians. *JAMA*, 283(1), 59-68.
- National Rural Health Association. (1998). Physician recruitment and retention. (Issue Paper ). Retrieved November 20, 2004, from <http://www.nrharural.org/pagefile/issuepapers/ipaper13.html>
- New Brunswick Department of Health and Wellness. (n.d). *Healthy Futures: Securing New Brunswick's Health Care System – The Provincial Health Plan 2004-2008*. Fredericton: Province of New Brunswick. Retrieved December 12, 2004, from [http://www.gnb.ca/0051/pdf/healthplan-2004-2008\\_e.pdf](http://www.gnb.ca/0051/pdf/healthplan-2004-2008_e.pdf)



- New Brunswick Department of Justice. (2004). *New Brunswick Acts and Regulations: H-2 Health Act*. Fredericton: Queen's Printer. Retrieved December 12, 2004 from <http://www.gnb.ca/0062/acts/acts/h-02.htm>.
- New Brunswick Department of Justice. (2004). *New Brunswick Acts and Regulations: H-3 Health Services Act*. Fredericton: Queen's Printer. Retrieved December 12, 2004, from <http://www.gnb.ca/0062/acts/acts/h-02.htm>
- New Brunswick Department of Public Safety. (November 2004). *2003-2004 Annual Report*. Fredericton: Province of New Brunswick. Retrieved December 12, 2004, from <http://www.gnb.ca/0276/reports/pdf/AnnRep2003-2004.pdf>
- Newfoundland and Labrador. (2001). *An Act to Amend the Registered Nurses Act*. St. John's: Queen's Printer. Retrieved December 12, 2004, from <http://www.gov.nl.ca/hoa/chapters/2001/0129.chp.htm>
- Newfoundland and Labrador. (2004). *Pharmaceutical Association Act, 1994*, Chapter P-12.1. St. John's: Queen's Printer. Retrieved December 12, 2004, from <http://www.gov.nl.ca/hoa/statutes/P12-1.htm>
- Newfoundland and Labrador. (2004). *Registered Nurses Act*, Chapter R-9. St. John's: Queen's Printer. Retrieved December 12, 2004, from <http://www.gov.nl.ca/hoa/statutes/r09.htm>
- Newfoundland and Labrador. (2004). *Regulation 65/98 Nurse Practitioner Regulations under the Registered Nurses Act*. St. John's: Queen's Printer. Retrieved December 12, 2004, from <http://www.gov.nl.ca/hoa/regulations/rc980065.htm>
- Newfoundland and Labrador Health and Community Services. (October 21, 1998). Media Release: *Alternate Health Care Model Planned*. Retrieved December 12, 2004 from <http://www.gov.nl.ca/releases/1998/health/1021n02.htm>
- Newfoundland and Labrador Health and Community Services. (December 20, 1999). Media Release: *Nurse Practitioner Program Receives Approval*. Retrieved December 12, 2004, from <http://www.gov.nl.ca/releases/1999/health/1220n07.htm>
- Newfoundland and Labrador Health and Community Services. (July 4, 1997). Media Release: *Nurse Practitioner Program set for this fall*. Retrieved December 12, 2004, from <http://www.gov.nl.ca/releases/1997/health/0704n01.htm>
- Newfoundland and Labrador Health and Community Services. (2001). Billing for Patients Referred to Specialists by Nurse Practitioners. *Medical Care Plan Newsletter*, December. Retrieved December 12, 2004, from [http://www.gov.nf.ca/mcp/news/01\\_07.pdf](http://www.gov.nf.ca/mcp/news/01_07.pdf)
- Northwest Territories Health and Social Services. (March 2004). *Integrated Service Delivery Model for the NWT Health and Social Services System*. Yellowknife: Author. Retrieved December 15, 2004, from <http://www.hlthss.gov.nt.ca/content/Publications/Reports/ISDM/isdmdetailedmarch2004.pdf>
- Northwest Territories Health and Social Services. (October, 2003). *NWT Health and Social Services System: Action Plan 2002-2005 Status Report April-September 2003*. Yellowknife: Author.
- Nova Scotia Department of Health. (n.d.). *Annual Accountability Report for the Year 2002-2003*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/>

downloads/2002-2003AnnualAccountability.pdf

- Nova Scotia Department of Health. (n.d.). *Strengthening Primary Care in Nova Scotia Communities: Summary of Evaluation Results*. Halifax: Author. Retrieved December 12, 2004, from [http://www.gov.ns.ca/health/phcrenewal/evaluation/PC\\_SUMM\\_EVAL.pdf](http://www.gov.ns.ca/health/phcrenewal/evaluation/PC_SUMM_EVAL.pdf)
- Nova Scotia Department of Health. (n.d.). *2004-2005 Business Plan*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/downloads/2004-2005%20DoH%20Business%20Plan.pdf>
- Nova Scotia Department of Health. (n.d.). *2002-2003 Business Plan*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/downloads/2002plan.pdf>
- Nova Scotia Department of Health. (n.d.) *Annual Accountability Report for the Year 2002-2003*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/downloads/2002-2003AnnualAccountability.pdf>
- Nova Scotia Department of Health. (March 2004). *Nova Scotia Pharmacare Programs: Pharmacist's Guide*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/pharmacare/pubs/Rx-guide.pdf>
- Nova Scotia Department of Health. (2003). *Minister's Report to Nova Scotians: Confident Change for Quality Care 2003-04*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/report/Ministers-Report-to-Nova-Scotians.pdf>
- Nova Scotia Department of Health. (May 2003). *Primary Health Care Renewal: Action for Healthier Nova Scotians. Highlights*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/phcrenewal/Highlights.pdf>
- Nova Scotia Department of Health. (May 2003). *Primary Health Care Renewal: Action for Healthier Nova Scotians. Report of the Nova Scotia Advisory Committee on Primary Health Care Renewal*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/phcrenewal/Final%20Report%20May%202003.pdf>
- Nova Scotia Department of Health. (April, 2002). *Submission to the Commission on the Future of Health Care in Canada* (The Romanow Commission). Halifax: Author. Retrieved December 13, 2004, from <http://www.gov.ns.ca/health/downloads/romanow.pdf>
- Nova Scotia Department of Health. (2002). *Nova Scotia's Nursing Strategy UPDATE*. Halifax: Author. Retrieved December 12, 2004, from [http://www.gov.ns.ca/health/downloads/Nursing\\_Update\\_2002.pdf](http://www.gov.ns.ca/health/downloads/Nursing_Update_2002.pdf)
- Nova Scotia Department of Health. (April 2001). *Nova Scotia's Nursing Strategy*. Halifax: Author. Retrieved December 13, 2004, from <http://www.gov.ns.ca/health/downloads/strategy.pdf>
- Nova Scotia Department of Health Primary Care Section. (March 30, 2001). *Strengthening Primary Care in Nova Scotia Communities Progress Report*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/primary-care/pubs/primarycare.pdf>
- Nova Scotia Department of Health. (November 9, 1999). Media Release: *Amendments to Pharmacy Act Proposed*. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/release.asp?id=19991109002>



- Nova Scotia House of Assembly. (2002). *Licensed Practical Nurses Act, 2001*, c. 7, s.1. Halifax: Crown right of Nova Scotia. Retrieved December 12, 2004, from <http://www.gov.ns.ca/legislature/legc>
- Nova Scotia House of Assembly. (2004). *Pharmacy Act, 2001*, c. 36, s.1. Halifax: Crown right of Nova Scotia. Retrieved December 12, 2004, from <http://www.gov.ns.ca/legislature/legc>
- Nova Scotia House of Assembly. (2002). *Registered Nurses Act, 2001*, c. 10, s.1. Halifax: Crown right of Nova Scotia. Retrieved December 12, 2004, from <http://www.gov.ns.ca/legislature/legc>
- Nurse Practitioners Association of Ontario. (2004). *NPAO In Action*, 14(3), 1-16.
- Nurse Practitioners Association of Ontario. (2003). Chair Report and Committee Reports. *NPAO In Action*, 14(1): 1-2.
- Nurse Practitioners Association of Ontario (n.d.). *Standards of Practice for Registered Nurses in the Extended Class*. Retrieved November 20, 2004, from <http://www.npao.org/npstandards.html>
- Nurse Practitioners Association of Ontario. (2002). *Position Statement – Program Funding for primary health care NPs*. Retrieved November 11, 2004, from <http://www.npao.org/pstatement.html>
- O'Brien-Pallas, L., S. Birch, A. Baumann, and G. Tomblin Murphy. (2001). Integrating workforce planning, human resources, and service planning. *Human Resources Development Journal*, 5(1-3), 2-16.
- O'Brien-Pallas, L., Baumann, A., Donner, G., Tomblin Murphy, G., Gerlach, J., & Luba, M. (2001). Forecasting models for human resources in health care. *Journal of Advanced Nursing*, 33 (1), 120-129.
- O'Brien Pallas, L., S. Birch, A. Baumann, and G. Tomblin Murphy. (2000). *Integrating workforce planning, human resources, and service planning*. Workshop on Global Health Workforce Strategy (Annecy, France, 9 12 December 2000) [on-line]. Geneva, Switzerland: World Health Organization, 2001. Retrieved November 20, 2004, from: [http://www.who.int/hrh/documents/en/Integrating\\_workforce.pdf](http://www.who.int/hrh/documents/en/Integrating_workforce.pdf)
- O'Brien-Pallas, L., Baumann, A., Birch, S., & Tomblin Murphy, G. (2000). Health human resource planning in home care: How to approach it–That is the question. *HealthcarePapers*, 1(4), 53-59.
- O'Brien-Pallas, L., Baumann, A., Donner, G., Lochhass Gerlach, J., Luba, M., Lakats, L., et al. (1998). *Health human resources: An analysis of forecasting models*. Ottawa, Canada: Canadian Nurses Association.
- O'Brien-Pallas, L. (2002). Where to from here? (Editorial). *Canadian Journal of Nursing Research*, 33(4), 3-14.
- O'Brien-Pallas, L., Tomblin Murphy, G., Baumann, A., & Birch, S. (2001). Framework for analyzing health human resources (p.6). In *Canadian Institute for Health Information. Future development of information to support the management of nursing resources: Recommendations*. Ottawa: CIHI.

- OECD Directorate for Employment, Labour and Social Affairs. (2004, October 19). *Skill mix and policy change in the health workforce: Nurses in advanced roles*. (OECD Health Working Paper No. 17, principal writers Buchan, J. & Calman, L.). France: OECD.
- Office of the Premier, Nova Scotia. (2000). *Strong Leadership-A Clear Course... One Year Later*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/prem/publications/STRONG.pdf>
- Office of the Provincial Chief Nursing Officer. (2004). *The Nursing Secretariat News, 1* (Spring/Summer). Toronto: Author. Retrieved December 13, 2004, from [http://www.health.gov.on.ca/english/providers/program/nursing\\_sec/newsletters/nsnl\\_300404.pdf](http://www.health.gov.on.ca/english/providers/program/nursing_sec/newsletters/nsnl_300404.pdf)
- Offredy, M. (2002). Decision making in primary care: Outcomes from a study using patient scenarios. *Journal of Advanced Nursing, 40*(5), 532-541.
- O'Keefe, E. & Gardner, G. (2003). Researching the sexual health nurse practitioner scope of practice: A blueprint for autonomy. *Australian Journal of Advanced Nursing, 21*(2), 33-41.
- Ontario Health Services Restructuring Commission. (March 2000). *Looking Back, Looking Forward – Seven Points for Action*. Toronto: Author. Retrieved December 14, 2004, from <http://www.health.gov.on.ca/hsrc/Seven.doc>
- Ontario Ministry of Health and Long Term Care. (January 2003). *Doctors and Nurses*. Toronto: Author. Retrieved December 13, 2004, from [http://www.health.gov.on.ca/english/public/updates/archives/hu\\_03/hu\\_docnurse.html](http://www.health.gov.on.ca/english/public/updates/archives/hu_03/hu_docnurse.html)
- Ontario Ministry of Health and Long Term Care. (January 2003). *Nurse Practitioners*. Toronto: Author. Retrieved December 13, 2004, from [http://www.health.gov.on.ca/english/public/updates/archives/hu\\_03/hu\\_docnurse/nurseprac\\_fs.html](http://www.health.gov.on.ca/english/public/updates/archives/hu_03/hu_docnurse/nurseprac_fs.html)
- Ontario Ministry of Health and Long Term Care. (2003). *Ontario's NP Initiative*. Toronto: Author. Retrieved December 13, 2004, from [http://www.health.gov.on.ca/english/providers/project/nurseprac/practitioners\\_mn.html](http://www.health.gov.on.ca/english/providers/project/nurseprac/practitioners_mn.html)
- Ontario Ministry of Health and Long Term Care. (2003). *Nurse Practitioner Application Process*. Toronto: Author. Retrieved December 13, 2004, from [http://www.health.gov.on.ca/english/providers/project/nurseprac/practitioners\\_mn.html](http://www.health.gov.on.ca/english/providers/project/nurseprac/practitioners_mn.html)
- Ontario Ministry of Health and Long Term Care. (2003). *Resource Manual for Physicians, Section 6*. Toronto: Author. Retrieved December 13, 2004, from [http://www.health.gov.on.ca/English/providers/pub/ohip/physmanual/download/section\\_6.pdf](http://www.health.gov.on.ca/English/providers/pub/ohip/physmanual/download/section_6.pdf)
- Ontario Ministry of Health and Long Term Care (2003). *Report on the Integration of Primary Health Care nurse Practitioners into the Province of Ontario*. (Final Report, June 30, 2003). Retrieved November 21, 2004, from [http://www.health.gov.on.ca/english/public/pub/ministry\\_reports/nurseprac03/nurseprac03\\_mn.html](http://www.health.gov.on.ca/english/public/pub/ministry_reports/nurseprac03/nurseprac03_mn.html)
- Ontario Ministry of Health and Long Term Care. (2003). *Nurse Practitioner Demonstration Project*. Toronto: Queen's Printer. Retrieved December 13, 2004, from [http://www.health.gov.on.ca/english/providers/program/nursing\\_sec/npdp.html](http://www.health.gov.on.ca/english/providers/program/nursing_sec/npdp.html)
- Ontario Ministry of Health and Long Term Care. (July 21, 1999). Delegation to Registered Nurses Extended Class – RN(EC), *OHIP Bulletin 10003*. Toronto: Author. Retrieved

- December 13, 2004, from <http://www.health.gov.on.ca/english/providers/program/ohip/bulletins/10000/bul10003.html>
- Ontario Ministry of Health and Long Term Care. (April 14, 1998). Nurse Practitioners – Referrals, *OHIP Bulletin 4310*. Toronto: Author. Retrieved December 13, 2004, from <http://www.health.gov.on.ca/english/providers/program/ohip/bulletins/4000/bul4310.html>
- Ontario Nursing Secretariat. (2004). Retrieved December 13, 2004, from [http://www.health.gov.on.ca/providers/program/nursing\\_sec/nursing\\_sec\\_mn.html](http://www.health.gov.on.ca/providers/program/nursing_sec/nursing_sec_mn.html)
- Pearson, A. & Peels, S. (2002). Advanced practice in nursing: International perspective. *International Journal of Nursing Practice*, 8, (Special Supplement), S1-S4.
- Phillips, R., Harper, D., Wakefield, M., Green, L & Fryer, G. (2002). Can nurse practitioners and physicians beat parochialism into plowshares? *Health Affairs*, 21 (5), 133-143.
- Pong, R. & Russell, N. (2004). Strengthening Ontario's Rural Health Workforce: A Synthesis of Views and Recommendations. *Research in FOCUS on Research*. Laurentian University, Sudbury, Ontario: Centre for Rural and Northern Health Research.
- Pong, R.W. (1997). Towards developing a flexible health workforce: A conference background paper. *Canadian Journal of Medical Radiation Technology*, 28(1), 11-18.
- Primary Health Care as a Model: Lessons Learned. Advancing Primary Care in Alberta: Sharing the Learning. (August, 2002). Retrieved December 22, 2004, from <http://www.health.gov.ab.ca/key/phc/index.htm>
- Prince Edward Island Department of Health and Social Services. (November 2004). *P.E.I.'s Second Report on Common Health Indicators*. Charlottetown: Author. Retrieved December 12, 2004, from [http://www.gov.pe.ca/photos/original/hss\\_2nd\\_r\\_chi.pdf](http://www.gov.pe.ca/photos/original/hss_2nd_r_chi.pdf)
- Québec Ministre de la Santé et des Services Sociaux. (2004). Main Quebec Health and Social Services Prevention and Promotion Initiatives [English version]. Quebec: Author. Retrieved December 12, 2004, from <http://ftp.nsss.gouv.qc.ca/publications/acrobat/f/documentation/2004/actprevention04a.pdf>
- Québec Ministre de la Santé et des Services Sociaux. (2002). Health and Social Services Plan: Making the Right Choices [English version]. Quebec: Direction des Communications, Government of Quebec. Retrieved December 12, 2004, from <http://ftp.nsss.gouv.qc.ca/publications/acrobat/f/documentation/2002/02-108-01A.pdf>
- Québec Commission d'étude sur les services de santé et les services sociaux. (2001). Emerging Solutions: Report and Recommendations [English version]. Quebec: Government of Quebec. Retrieved December 12, 2004, from <http://ftp.nsss.gouv.qc.ca/publications.html>
- Romanow, Roy. (2002). *Building on Values: The Future of Health Care in Canada: Final Report*. [electronic version]. Ottawa: Commission on the Future of Health Care in Canada. Retrieved November 10, 2004, from [http://www.hc-sc.gc.ca/english/pdf/care/romanow\\_e.pdf](http://www.hc-sc.gc.ca/english/pdf/care/romanow_e.pdf)
- Rural and Remote Working Group. (March 29, 2004). *Rural and Remote Nursing Recruitment and Retention in Nova Scotia*. Halifax: Author. Retrieved December 12, 2004, from <http://www.gov.ns.ca/health/nursing/pubs/RRWG%20Final%20Report%20Mar%2029%202004.pdf>

- Saskatchewan Department of Health. (2004). Saskatchewan Comparable Health Indicators Report. Regina: Authors. Retrieved December 22, 2004, from [http://www.health.gov.sk.ca/mc\\_pirc2\\_report.pdf](http://www.health.gov.sk.ca/mc_pirc2_report.pdf)
- Saskatchewan Registered Nurses' Association. (October, 2003). *Registered Nurse (Nurse Practitioner) RN (NP) Standards & Core Competencies 2003*. Regina: Author.
- Saskatchewan Registered Nurses' Association. (2000). *Position Statement: 24 Hour Registered Nurse Coverage*. Regina, Saskatchewan: Author.
- Shum, C., Humphreys, A., Wheeler, D., Cochrane, M., & Clements, S. (2000). Nurse management of patients with minor illnesses in general practice: Multicentre, randomized controlled trial. *British Medical Journal*, 320(7241), 1038-1043.
- Sidani, S., Irvine, D., & DiCenso, A. (2000). Implementation of the primary care nursing practitioner role in Ontario. *Journal of Nursing Leadership*, 13(3), 13-19.
- Select Standing Committee on Health. (2001). *Patients First: Renewal and Reform of British Columbia's Health Care System*. Vancouver: British Columbia Ministry of Health Services. Retrieved December 12, 2004, from <http://www.legis.gov.bc.ca/cmt/37thparl/session-2/health/reports/healthtoc.htm#table%20of%20contents>
- Smitherman, George. (January 30, 2004). *Nurse Practitioner Integration* (Presentation at the Nurse Practitioner Research and Professional Practice Conference). Retrieved December 13, 2004, from [http://www.health.gov.on.ca/english/media/speeches/archives/sp\\_04/sp\\_013004.html](http://www.health.gov.on.ca/english/media/speeches/archives/sp_04/sp_013004.html)
- Standing Committee on Public Accounts. Minutes from Wednesday, January 19, 2000 session. Halifax: Province of Nova Scotia. Retrieved December 12, 2004, from <http://www.gov.ns.ca/legislature/hansard/comm/pa/pa000119.htm>
- Statistics Canada. (2002). Health Services Access Survey. *The Daily, July 15, 2002*. Ottawa: Statistics Canada. Retrieved December 22, 2004, from <http://www.statcan.ca/Daily/English/020715/d020715a.htm>
- The Primary Health Care Policy Development and Implementation Team. (April 9, 2002). *Primary Health Care Policy Framework*. Winnipeg, Manitoba: Manitoba Health.
- Tilleczek, K., Caty, S., Russell, N., Pong, R., and Rukholm, E. (2003). Online Learning for Rural NPs. *Research in Focus on Research*. Laurentian University, Sudbury, Ontario: Centre for Rural and Northern Health Research.
- Tomblin Murphy, G. (2002). Methodological issues in health human resource planning: cataloging assumptions and controlling for variables in needs-based modeling. *Canadian Journal of Nursing Research*, 33(4), 51-70.
- Tomblin Murphy, G. and O'Brien-Pallas, L. (2002). A health human resources discussion paper: How do health human resource policies and practices promote or inhibit change? In *Building on Values: The Future of Health Care in Canada Final Report*. (Discussion Paper #30). Ottawa: Government of Canada.
- Tomblin Murphy, G., O'Brien-Pallas, L., & Birch, S. (2004). *Nurse Practitioner health human resources planning/modeling data collection framework*. (unpublished). Document submitted to the Canadian Nurses Association.

- Tomblin Murphy, G. & O'Brien-Pallas, L. (2004). *The Development of a National Data Set for Health Human Resources in Canada: Beginning the Dialogue*. A working Document with Canadian Institute for Health Information (CIHI). Ottawa: CIHI.
- Tomblin Murphy, G., & Barrath, D. (2002). A survey of web-based health human resource planning activities in Canada. *Canadian Journal of Nursing Research*, 33(4), 123-137.
- Tomblin Murphy, G. & O'Brien-Pallas, L. (2003). How do human-resources policies and practices inhibit change in health care? A plan for the future. In Forest, P.G., McIntosh, T., & Marchildon, G. (Eds.) *Changing health care in Canada*. (150-182). Toronto: University of Toronto Press.
- Tomblin Murphy, G., L. O'Brien-Pallas, S. Birch, and G. Kephart. *Hospital Service Utilization: Implications for Nursing Human Resource Planning. Final Report*. Toronto: University of Toronto Faculty of Nursing, March 31, 2004.
- Tomblin Murphy, G., L. O'Brien-Pallas, S. Birch, and G. Kephart. *Health Human Resource Planning: An Examination of Relationships among Nursing Service Utilization, an Estimate of Population Health and Overall Health Status Outcomes in the Province of Ontario. Final Report*. (CHSRF Open Grants Competition Funded Project identifier RC1-0618-06.) [on-line] Toronto: University of Toronto Faculty of Nursing, December 31, 2003. Final report submitted and at CHSRF website. Available from: <[http://www.chsrf.ca/final\\_research/ogc/pdf/tomblin\\_final.pdf](http://www.chsrf.ca/final_research/ogc/pdf/tomblin_final.pdf)>
- van Soeren, M. & Micevski, V. (2001). Success indicators and barriers to acute nurse practitioner role implementation in four Ontario hospitals. *AACN Clinical Issues*, 12 (3), 424-437.
- Venning, P. Durie, A., Roland, M., Roberts, C & Leese, B. (2000). Randomized controlled trial comparing cost effectiveness of general practitioners and nurse practitioners in primary care. *BMJ*, 320(7241), 15, 1048-1053.
- Watson, D.E., Broemeling, A., Reid, R.J. & Black, C. (September 2004). *A Results-Based Logic Model for Primary Health Care*. Vancouver: University of British Columbia College of Health Disciplines, Centre for Health Services and Policy Research.
- Way, D., Jones, L., and Baskerville, N.B. (March 31, 2001). *Final Report: Improving the Effectiveness of Primary Health Care Through Nurse Practitioner/Family Physician Structured Collaborative Practice*. Ottawa: Authors.
- Way, D., Jones, L., Baskerville, B., & Busing, N. (2001). Primary health care services provided by nurse practitioners and family physicians in shared practice, *CMAJ*, 165 (9), 1210-1214.
- Way, D., Jones, L., & Busing, N. (2000). *Implementation strategies: Collaboration in primary care—family doctors and nurse practitioners delivering shared care*. (Discussion paper for the Ontario College of Family Physicians). Toronto: Ontario College of Family Physicians.

## Appendix A: Table 1

### Comparison of Provincial and Territorial Issues related to Nurse Practitioners

Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/discentives	Distribution (urban vs rural)
<p><b>British Columbia</b></p> <p><b>Registered Nurse (RN). Unofficial use of the title Nurse Practitioner (NP) in Community Health Centres.</b></p>	May 2005	Presently in draft	<p>Independent NP practice similar to that provided by family practitioners</p> <p>More reserved acts than anywhere in the country</p>	<p>Master's of Nursing or PLAR (Prior Learning Assessment &amp; Recognition) process</p> <p>Professional development through the Professional and Organizational Development, Evidence and Evaluation strategy funded by the Health Transition fund</p> <p>30 spaces per year at UVic &amp; UBC</p> <p>15 seats at UNBC program in development</p> <p>Investment in telehealth</p> <p>3 priorities for NP education are PHC, geriatrics, mental health</p> <p>Educational funding has been equally</p>	<p>Variety, although NPs not integrated into the system yet. It is anticipated there will be interdisciplinary models of care. Use of Nurse First Call since 1998</p>	<p>RNABC not member of CNPS. Have own Captive Insurance Corporation coverage</p>	<p>No unionized agreement negotiated at present.</p> <p>Uncertain of current salaries</p>	<p>Lot of policy and recruit and retention efforts focused on rural physicians (58 million).</p> <p>In 2001 the Ministry of Education funding (\$1.32 million) for – loan-forgiveness program for new graduates for under-serviced areas of the province</p>	<p>Difficult geography and widely dispersed populations</p>

Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/discentives	Distribution (urban vs rural)
				distributed across communities to cover the cost of travel for remote communities					
<b>Alberta</b> <b>RN - EP (Expanded Practice) officially, but usually called Community Nurse Practitioners.</b>	1999 under the <i>Health Professions Act</i> , amended in 2002 under the NP Regulations of the Public Health Amendment Act	To be an NP must have: 4,500 hrs RN experience, completed a baccalaureate in nursing, completed an approved NP program (Masters level)	Beyond the RN scope of practice, the NP scope of practice includes: diagnosing medical conditions, ordering and interpreting diagnostic tests and prescribing medications  The Extended Practice Roster Regulation governs registered nurses in extended/expanded roles.  AARN has developed competencies and guidelines to govern nurses providing <i>extended health services</i> .	Master's prepared  (The Nurse Practitioner, Capital Health, March 2004)	Employed by Regional Health Authority or Provincial Health Board	CNPS-occurrence-based and tail coverage  Employer should have primary insurance program	Legislation does not currently support unionization.	PHC pilot projects have short-term project funding and presents challenges in evaluating outcomes, recruiting positions and attaining and maintaining buy-in from stakeholders (Advancing Primary Health Care in Alberta)	Large rural populations & aboriginal communities therefore NP will address access issues
<b>Saskatchewan</b>	<i>Registered Nurses Act</i>		4500 hrs as RN & completion NP	Approved NP	Most work in Physician/Nurse	CNPS occurrence-based	Nurses covered in Collective		Large rural populations &



Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/ discentives	Distribution (urban vs rural)
	1988, Amended to RN Act in 2000 for NPs.  Government approved legislation in May 2004		program approved by SRNA council.  Scope of practice is defined by the province-wide clinical practice guidelines but subject to site modifications.	program  Bursaries available for NPs as a recruitment strategy in exchange for return for service agreement.	Practitioner Partnership	and tail coverage	Agreement  Those in unionized positions start at \$57,857 to \$69, 498		aboriginal communities therefore NP will address access issues
<b>Manitoba Extended Practice</b>	<i>Registered Nurses Act &amp; the Registered Nurses Regulations, 2001</i>  Extended Practice Regulation anticipated to be passed by end of 2004	Under the new legislation, regulations will be developed for required competencies in  extended/expanded nursing practice. CRNM has established standards of practice  which apply to all practicing registered nurses in the province regardless of their roles  or practice settings.	RN  Complete a program of nursing education in advanced practice approved by the CRNM board	Master's of Nursing advanced practice program and/or NP certification (Position paper on Advanced Practice nursing in the WRHA, 2001)		CNPS occurrence-based and tail coverage	Within unionized settings proposed salary range is \$56, 825 to \$71, 833 plus benefits (2001)		Large rural populations & Aboriginal communities therefore NP will address access issues
<b>Ontario- RN- EC (Extended Class) and other titles, such as Nurse Practitioner, used by employing</b>	<i>Registered Nurses Act, 1991 with amendments</i>		Legislated scope of practice is relative to primary care functions only. These controlled  acts are to be performed by RNs with an extended class designation.	Formal education via an approved NP program  Education funding	Collaborative practice arrangements with physicians  NPs to play a key role in new Family Health Teams ( to be implemented in	CNPS occurrence-based and tail coverage  If not member of RNAO not covered by CNPS (accounts for	Provider compensation funding linked to population  Separate salary grid. Negotiated at local	1999 document appropriate compensation, continuing education, work life issues and quality of life indicators— committed to	The community sector has the largest percentage of RN-ECs  64.9%  (CNO



Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/ discentives	Distribution (urban vs rural)
<b>organizations.</b>			598 RN-EC registered with CNO	<p>through the RNAO such as the Nursing Education Initiative and the Permanent Education Fund.</p> <p>More funding allocated from the Ontario government so that the number of seats would double from 75 to 150 for the COUPN program</p> <p>NPAO in Action, Volume 14, Issue 3</p> <p>Health Canada announced 1.5 million to be administered by COUPN to support continuing education programs for NPs</p> <p>Ontario is creating 300 Primary care NP positions in rural and under-serviced areas to increase access.</p> <p>Ontario government commitment to</p> <p>Additional 1.7</p>	<p>March 2005).</p> <p>Commitment to collaborative teams includes Primary care physicians and NPs as the core (1999)</p>	<p>~5% of NPs)</p> <p>NP agreements in Ontario require 7\$million coverage, 5\$ million comes from CNPS if RNAO member</p>	<p>agreement - \$80,000 - \$90,000</p> <p>Two groups:</p> <p>Primary Nurse Practitioner and</p> <p>Acute Nurse Practitioners</p> <p>Nurse Practitioners in Hospital not funded by Ministry so if Nurse Practitioner hired are taken out of general nursing budget.</p>	<p>strategies aimed at</p>	<p><b>Membership stats report, 2004).</b></p> <p>15% of the population live in rural communities and are served by less than 8% of physicians.</p> <p>3 million/year from NP Demonstration project to support collaborative practice in underserved communities</p>

Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/ discentives	Distribution (urban vs rural)
				million annually from MOHLC which offers an NP program through COUPN					
<b>Quebec RN (infirmiere/infirmier).</b>	Looking at adopting umbrella legislation (Bill 90) for health professionals to expand the scope of practice of each profession & encourage collaborative practice.	Recently released a report to government PQ suggesting how category of NP be established to accommodate broad scope of responsibility and services that the northern and isolated nurses provide (2004).				Have mandatory commercial coverage through Order of Nurses of Quebec			
<b>New Brunswick NP</b>	May 2002	At this time only primary health care NPs are eligible for registration/licensure		95 more nursing seats to be added; 40 more NP positions; at least four more collaborative practice primary health care clinics to be added  Master's level at UNB and Université de Moncton  Education subsidy program for student NPs to cover tuition and book costs however must stay in NB to practice	Move towards community-based, collaborative primary health care delivery models	CNPS occurrence-based and tail coverage	As per Collective Agreement. \$ 74, 470 to 83, 460 by July 2007		

Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/ discentives	Distribution (urban vs rural)
<b>Nova Scotia</b>  <b>Primary Care Nurse Practitioner</b>  <b>Now have 22 registered NPs</b>	<i>Registered Nurses Regulations, 2002</i>  NS has put forward a propose for legislation change to introduce omnibus/ umbrella legislation via a regulated health professions act	Diagnostic and Therapeutics Committee establish and authorize practice schedules for NPs	Defined by delegation of medical functions under guidelines negotiated by the College of Physicians and Surgeons of NS and the CRNNS	Approved advanced nursing education for PHC NPs  one year post baccalaureate program  two year post diploma program	Collaboration with physicians is mandated in legislation	CNPS occurrence-based and tail coverage  Physicians require proof of adequate coverage before collaborative practice agreement signed	Not yet negotiated - just been assigned to our union. Not sure what salaries or benefits are at this time. Each Nurse Practitioner up until now negotiated his/her own salary.		Of the 22 NPs in NS 11 work in rural areas. There are currently 3 unfilled positions
<b>PEI</b>	Dec. 16, 2004 Bill #13 Amendment to <i>Registered Nurses Act</i> .	One of three nurse practitioners working a pilot project in O'Leary.				CNPS occurrence-based and tail coverage	As per the Collective Agreement RN Level 3.  Starting at \$49, 101 to \$60, 411		

Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/ discentives	Distribution (urban vs rural)
<b>Nunavut</b> <b>NWT</b> <b>Community Health Nurse but also referred to as Primary Health Care Nurse Practitioner.</b>	June 2002 Bill 8 amendment to the Nursing and Pharmacy Act with a separate register for NPs and registration for NPs who are parties in collaborative practice  Amended in 2003				Integrated Service Delivery models focusing on collaborative approach  Primary Community Care Task Teams:  Client/family centered care  Needs based	CNPS occurrence-based and tail coverage		Challenges:  Funding Supporting care providers in their work  Interest in expanding and clarifying the role of the NP	80% of health care has been provided by nurses in the last fifty years with the point of care at the community health centers in isolated communities.  Incentive for nurses to attain advanced education as NPs
<b>Yukon</b> <b>Community Nurse Practitioner.</b>	New <i>Health Professions Act</i> in 2003	Broad definition of nursing practice. No separate regulations for nurses working in expanded roles	Employers have adopted the MSB Scope o practice guidelines for community health nurses	Employers accept a variety of education options		CNPS occurrence-based and tail coverage			
<b>Newfoundland and Labrador</b> <b>NP and Regional Nurse.</b>	1998 NP Act with a number of amendments each subsequent year. Last amendment 2004			1999 first NP grads from Centre for Nursing Studies.  One year certificate available to all nurses with at least 3 years experience	Collaborative practice arrangements with physicians.  The NP may refer patients to specialist physicians if GP not available and billing at same amount as if referred by GP	CNPS occurrence-based and tail coverage	In collective agreement.  Starting at \$49, 335 to \$63, 375. Recent comments suggest we do not have sufficient positions for the number we are graduating.	Very large, rural province  There are no consistent standards to ensure populations in rural areas receive primary health care.  Highly dispersed populations many of which	

Province	Legislation	Regulation	Scope of Practice	Education	Practice Models	Liability	Compensation (salaries, benefits, funding models)	Incentives/ discentives	Distribution (urban vs rural)
									are Aboriginal